

SPECIFICS OF OPEN INNOVATION IN SMEs

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Abstract:

In recent years, in specialized literature a new paradigm in open innovation management has come up, namely open innovation. It has aroused interest amongst both practitioners and theorists, although, for a long time, the studies were only focused on large companies. But the role of open innovation is becoming increasingly more important in SMEs due to globalization, the economic changes of recent years and the current market conditions. The success of such a strategy depends on the company's degree of openness to the outside in its innovation activities and its ability to balance between internal knowledge management, identification of external sources, knowledge transfer and collaboration to create new economic value. This article presents the results of a questionnaire-based survey conducted among managers of SMEs on open innovation. The objective of the investigation is to identify the motives for open innovation in SMEs and the key factors in implementing a management strategy which includes open innovation. The study includes companies that were involved in such projects and have experience in open innovation.

Keywords: open innovation, management, SMEs

1. INTRODUCTION

Open innovation (OI) has evolved as a concept of innovation management after its appearance in Chesbrough's publications now more than a decade ago. This concept requires a change of approach for innovation, from a closed one to an open one which allows free transfer of ideas, knowledge and technology between organizations to speed up and improve internal innovation.

OI is a process of distributive innovation which is based on the management of knowledge workflow in the external environment of the organization and has become a widespread strategy in many activity fields. Most studies focus on research of OI implementation in multinational companies, while SMEs have received less attention in this respect. Research shows that firm size has a significant role in the adoption of OI (Brunswick and Vanhaverbeke, 2011), but that doesn't mean that OI is relevant only for large companies. Moreover, the particular characteristics of SMEs can be advantageous in implementing OI. SMEs have behavioral advantages while large companies have financial advantages (Rothwell and Dodgson, 1994). SMEs' advantage lies in their entrepreneurial potential, as there is greater flexibility and quicker response to changes in the external environment. By opening their doors, companies can have access to their partners' additional capital to manage their reduced ability of research and development activities or by involving the end-user in the process of innovation to improve their marketing skills.

2. THE THEORETICAL FRAMEWORK

The OI model offers an alternative approach to the problem of intellectual property rights management, because the company decides to give up some of its intellectual property rights in the hope of obtaining significant financial and technological revenue in the future. Common practices include participation in consortia of research and development (R&D), collaboration with universities or research institutes, collaborations with other companies on specific areas and public activities (crowd-sourcing). The term Open Innovation was first introduced by Henry W. Chesbrough in 2003. Chesbrough noticed that during the late twentieth century many companies began to rethink how they managed innovation. Until then, the prevailing idea was that each company should strictly control the innovation process, from idea generation to the final product and its large-scale production. This model of Closed Innovation assumes that "successful innovation requires control" and that "companies should do everything by themselves". However, a combination of factors that emerged during this period dramatically changed how innovation process is done. These factors were mainly: increased risk of available capital, increasing the number and availability of employees with a high level of knowledge and the existence of unexploited ideas outside the firm. The new model describes a process in which the firm seeks external collaborations to gain ideas and new technologies, to exploit its own assets and establish alternative ways to the market during the innovation cycle. Therefore, the boundaries between the company and the environment become less restrictive, more permeable and allow two-way interactions, inwardly and outwardly.

Some of the benefits that applying the above principles could bring a company are:

- Finding new and innovative ideas;
- Development of new and innovative products and services
- Reducing cost and risk of sharing for R&D
- Entering new markets
- Increasing reputation
- Shortening the time of market entry

However, as Philipp Herzog states, many of these open innovation tools such as licensing, joint research and innovation agreements, common risks, minority investments, acquisitions of technology, etc. have been well known prior to the presently conceived concept of OI. But OI is more than the sum of its parts. It's a holistic approach for managing innovation which denotes, firstly, exploring both internal and external innovative sources, secondly, integration of the exploration results of the firms' capabilities and, thirdly, exploits through multiple channels.

Open innovation is defined as "the purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively" (Chesbrough et al., 2006). Based on this definition which highlights the mobility of knowledge, a typology appeared (Figure 1) which divides OI in in-bound and out-bound depending on the direction of knowledge flow

(Chesbrough and Brunswicker, 2013). In-bound OI refers to activities that focus on the acquisition of external knowledge "in-sourcing", "R&D collaboration", "mergers and acquisitions" and "customer involvement" fall into this category. Out-bound OI refers to knowledge exploitation to trading in various ways: "Licensing-out", "spin-off" and "open-sourcing".

Figure 1: Open innovation types by Knowledge Types flow direction

In-bound	In-sourcing
	R&D collaboration
	Customer involvement
	Merger & Acquisition/alliance
Out-bound	Open sourcing
	Licensing-out
	Spin-off

Source: Authors' own study

In what concerns OI structure, the three basic processes are: interior - exterior process, exterior - interior and coupled processes Exterior-interior process covers all activities bringing foreign ideas within the company and their marketing in the form of new products and processes. Interior-exterior covers process comprises the activities involved in exploiting ideas that are from outside the firm. Coupled processes refer to activities of cooperation between different actors in the innovation system. This process captures activities that relate to innovation collaboration. The firms look for in their consumers, customers and competitors, their understanding of the market and its change of direction, and from universities, research institutes, suppliers and competitors they either seek possible solutions or to explore new directions. This exposes the organization to various inputs, enabling them to imagine, experience and establish new combinations of technology and knowledge. Search processes are, therefore, seen as a capacity for change, which allows firms to sustain competitive advantage over time.

Literature dedicated to this concept showed different motivations for adopting OI in SMEs and the hindrances encountered. Among the motivations, the most important one is insufficient marketing ability (Narula, 2004). In general, most of the SMEs' weak points derive from their sizes (Narula, 2004). SMEs can adopt OI in order to be able to react to market changes, to meet customer needs or to develop new sales channels (Van of Willy et al., 2009). An insufficient capacity of R&D was identified as another determinant for SMEs in adopting external knowledge (Kim and Park, 2010). To overcome the problem of insufficient expertise in R&D, SMEs can try to resort to various sources of external information or they can exploit the expertise of other companies forming partnerships to access complementing capital.

Regarding hindrances, SMEs can't transfer technologies beyond their production lines. In reality, internal R&D has two functions: it not only generates new technologies, but also increases absorption capacity. The capacity of development, thus, depends on the level of knowledge previously gained. So SMEs with a less intensive capacity of R&D may not be able to exploit external knowledge effectively (Rosenberg and Steinmueller, 1988). Also, the difficulties in recruiting highly specialized employees, changing organizational culture and partner identification problems and interaction with them are often described as the obstacles to OI (Van of Willy et al., 2009).

3. DATA ANALYSIS

The questionnaire-based survey focused on the issue of individual representation relating to open innovation in SMEs and was achieved by the research instrument on a number of 118 heads of companies present in the Top Companies of County of Alba, which in a previous research said they had implemented OI programs in the business activities they lead (" The manager's role in open innovation", Cristina Feniser and F. Lungu 2015). Due to the nature of the research problem, the questionnaire was designed to be a self-assessment survey to remove the operator's influence and to reduce the effect of the interaction caused by his presence. Another reason we used this type of investigation was that self-administration needs less time and resources. The data were collected by mail and telephone. For data collection, we used the All Top Companies in Alba in 2012. As the data-

collection instrument, a questionnaire was used. It was sent by email to the managers after they were contacted by telephone and were asked to answer the questions and to send us the questionnaire completed. Out of the entire database, those who responded were the 118 whose questionnaires were analyzed.

The motivation for getting involved in OI projects is one of the subjects which concern us about the specific of implementing this type of activities in SMEs. In theory there are three factors that have determined the appearance of OI. First, business challenges have prompted the search for alternative strategies. Next, the potential benefits that OI brings have led managers to become interested in such projects and, last, but not least, change of mentality about R&D. In this sense, training is very important because it creates favorable conditions for opening to external environment. According to the answers given by the respondents, the most important reasons why managers choose to engage in OI projects are: they represent the collection of new idea for development, a better understanding of the customer's needs and expectations and access to new technologies and technical knowledge used in the industry.

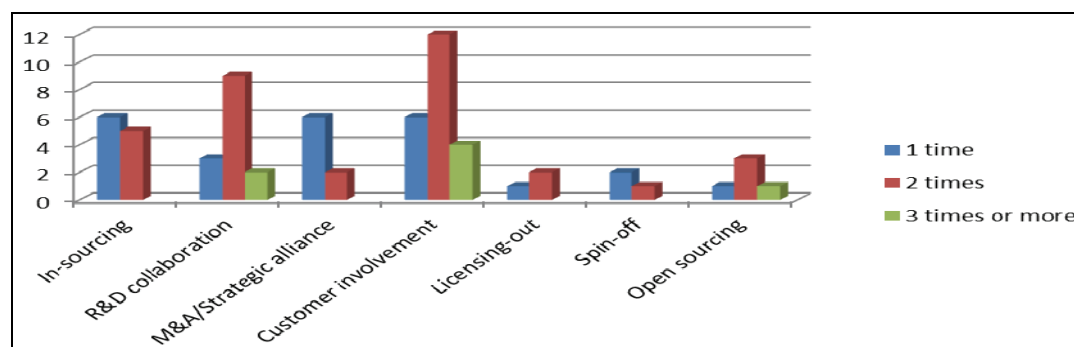
Table 1: Motivation for starting OI projects

Motivation for starting OI projects	Not important at all	Somewhat important	Important	Very important
Collecting new developmental ideas			57%	43%
To have a better understanding of customer needs and expectations			42%	58%
Access to new technologies or technical knowledge used in the industry		6%	65%	29%
Accelerate time to get into the market		12%	48%	40%
Improving the efficiency of the company	2%	35%	36%	27%
Removal of complex investment risk		31%	42%	27%
Strengthen relationships with suppliers	9%	62%	29%	
Recovery of intellectual property and patents	12%	53%	35%	

Source: Authors' own study

Figure 2 shows the distribution of the type of OI of the respondent firms. The results show that in-bound OI is more common than out-bound OI. Three types of OI are particularly presented in the companies surveyed, namely, in sourcing activities, R&D collaboration and customer involvement.

Figure 2: Types of open innovation adopted in SMEs



Source: Authors' own study

Despite the lack of studies about OI in SMEs, few notable research helped us to understand their general characteristics. Van de Vrande's research in 2009, the first one that is concerned about SMEs on this topic, almost 90% of the sample firms had adopted at least one type of OI. Examples of out-bound OI were few, while the in-bound ones were actively adopted by most SMEs analyzed (Van de Willy et al., 2009). Other authors have observed that out of the types of in-bound OI used, customer involvement is the most commonly present in SMEs (Van of Willy et al., 2009). These results are confirmed, as shown by the data above analyzed in our study. Out of the advantages OI offers managers, the most important ones for the companies they manage are considered to be risk reduction, cost sharing for R&D and development of new and innovative products and services.

4. CONCLUSIONS

Today, many small businesses are facing difficult market conditions. The economic crisis has weakened the financial health, especially in rapidly globalizing industries. These changes in the market have forced them to seek new ways to differentiate their products and create new businesses. Because they don't have sufficient internal resources, SMEs often collaborate with external partners to innovate successfully and to obtain more advantageous position. Open Innovation is, thus, a natural step for many small businesses. The concept of open innovation requires that companies aren't required to have all the capabilities of research and development to be successful. The managers who participated in this study are among those who were involved in partnerships. They initiated collaborations to become major players in the local industry and so that the companies they manage continue to be profitable.

This article presents the results of a study on open innovation in SMEs based on a study made with a questionnaire given to Companies in the county of Alba that have implemented open innovation projects. The results show that "in-bound" open innovation, especially research and development collaboration and customers involvement are the most common types among the companies analyzed. This result is not surprising because it is met in studies published on this topic in other countries. Van de Vrande et al. (2009) studied SMEs in Germany and, in his sample, knowledge of customer need was the most important reason for the implementation of OI. Cosh and Zhang (2011) analyzed the SMEs in the UK and found that they had active partnerships with customers and suppliers and collaborate in research and development activities, such as, in marketing.

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