Cooperation in Incremental Innovation Activities:
An Empirical Analysis of Moroccan Firms

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ABSTRACT
This paper analyses the impact of cooperation strategies on incremental innovation capacity, and the determinants of the cooperative arrangements for innovation. More precisely, the authors identify the cooperation strategies that should be preferred in the case of incremental innovation and the determinants of cooperation for innovation, depending on the partner with whom cooperation is established. The data they use come from the National Innovation Survey. The authors’ results suggest, on the one hand, that incremental innovation is achieved through vertical and institutional cooperation (except universities). On the other hand, it has proved that there are complementarities between the various cooperation strategies for innovation and that the determinants of cooperation differ significantly between partners. Furthermore, the results confirm the interdependence of cooperation strategies revealing heterogeneity in the determinants of cooperation strategies. These findings and their implications are discussed.

KEYWORDS
Cooperation, Incremental Innovation, Innovation, Moroccan Firms, National Innovation Survey

1. INTRODUCTION
This research is part of a broader view of innovation that emphasizes the importance of cooperation strategies. In this approach based on both internal and external skills needed for innovation, they are no longer isolated firms that introduce innovations but firms that tend to produce heterogeneous resources necessary for innovation ( Teece, 1998). The engagement of firms in innovation cooperative relationships in R&D can be justified by the ability of firms to use external sources of knowledge that are essential features of an open innovation system (Chesbrough, 2006). These cooperative relationships are maintained with actors as many as customers, suppliers, competitors, universities, etc. (Arranz & Arroyabe, 2008; Belderbos, Carree, Dieder, Lokshin, & Veugelers, 2004a; Chesbrough, 2006; Nalebuff, Brandenburger, & Maulana, 1996; Nieto & Santamaria, 2007; Tomlinson, 2010; Yami, Castaldo, Dagnino, & Le Roy, 2010).

The adaptation of external resources is cheaper than the realization of R&D activities internally. Cooperation between firms is a means to develop innovation activities with a positive effect on

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efficiency and the minimization of transaction costs (Williamson, 2002). However, this theory does not take into account strategic advantages that can be derived from the various strategies of cooperation. Thus, our approach forms a part of the resource allocation vision (Fritsch & Lukas, 2001; Lavie, 2006; Tether, 2002). Cooperation activities offer opportunities for knowledge transfer, exchange of resources and a sustainable organizational learning ability (Cohen & Levinthal, 1990).

Research on the impact of cooperative relationships highlight their importance in the process of firm innovation. The success of innovation activities is determined by the combination of cooperation strategies and R&D activities (Sadgui, 2014). References (Aschhoff & Schmidt, 2008; Belderbos, Carree, & Lokshin, 2004b; Lööf & Broström, 2006; Miotti & Sachwald, 2003) provide empirical evidence showing that the economic performance of firms is positively influenced by the innovation cooperative agreements in R&D.

This paper seeks, firstly, to identify the determinants of innovation cooperation strategies and the reasons which lead firms to prefer a certain type of partner rather than another. Secondly, the authors test the effects of firm characteristics, sectoral effects and the impact of the absorptive capacity on the various cooperation strategies.

The authors present in the second section a review of the literature about this issue. In the third section, the authors describe the data used and the research methodology. The fourth section is dedicated to the discussion of the results of econometric estimates. The last section is reserved to the presentation of some concluding remarks.

2. LITERATURE REVIEW

Two main approaches were mobilized to study the factors that influence the cooperative behavior of firms in order to innovate. The literature of industrial organization focuses on the possibilities of knowledge transfer and exchange of resources due to the inclusion of new technologies (D’Aspremont & Jacquemin, 1988; Fritsch & Lukas, 2001; Tether, 2002). The other approach is presented in the literature on strategic management and focuses on the importance of the minimization of transaction costs, risks and complementarities in the process of innovation (Das & Teng, 2000; Pisano, 1990; Williamson, 2002).

The first approach is based on resources (Eisenhardt & Schoonhoven, 1996; Fritsch & Lukas, 2001; Lavie, 2006; Miotti & Sachwald, 2003; Tether, 2002). The exchange of resources due to innovation works as a determinant of cooperation strategies in R&D (Badillo & Moreno, 2012). The objective being to manage the flow of internal and external knowledge, firms decide to engage in cooperation agreements. In this sense, as pointed out by (Eisenhardt & Schoonhoven, 1996), strategic alliances are a popular way for critical resources. From the point of view of the resources-based approach, competitive advantage flows not only from resources but also from the possibility to access these resources through cooperation (Arranz & Arroyabe, 2008). The cooperative behavior arises from the need for specific resources that the firm cannot develop internally. Thus, resources are complementary if the firm is looking for a technological convergence or similar if the objective is to reduce the costs and risks associated with innovation processes.

The second approach mobilized to analyze the cooperation strategies is that of the theory of transaction costs (Williamson, 2002). In this sense, firms are participating in cooperation agreements to gain access to additional knowledge or to share the risks and costs (Hagedoorn, 1993). However, this logic of cost minimization ignores many strategic advantages of cooperation such as learning and quick entry into the market when it is about the choice of partner (Arranz & Arroyabe, 2008). The theory of transaction costs is more relevant when analyzing the static efficiency and common situations.

Firms can engage in cooperative relationships with partners within the supply chain such as suppliers and customers (vertical cooperation), as they can maintain cooperation agreements beyond the supply-chain with competitors within the framework of horizontal cooperation. Beyond the
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