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From the Triple Helix model to the Global Open Innovation model: A case study based on international cooperation for innovation in Dominican Republic☆

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ABSTRACT

This study presents a case study research that sets out the process of designing the Dominican Republic's RDI strategy during the period 2001–2007 and the role played by international cooperation in that process. We discussed the Triple Helix model as framework, and the use of a new approach that can be transferred to other countries. The results have validated some of the model's assumptions, but they have also confirmed the existence of certain explanatory limitations in it. In order to rectify them, a new model – the Global Open Innovation model – has been proposed as alternative approach to the innovation transfer.

Introduction

University, Industry and Government: three different contexts fated to reach an understanding. The transfer of scientific and technological knowledge from universities to industry has been seen as a

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conditioning factor in a country's economic development, yet also as a complex problem with many and varied economic, political and cultural implications (Aghion et al., 2005, 2008; Bozeman, 2000).

The need to articulate the relationship among these three very different contexts has led academics to look for models that will help facilitate this inter-relationship and the design of policies on Research, Development and Innovation (RDI). However, in light of criticisms of the lack of application of the conceptual models and the ambiguity of their assumptions (Fitriati et al., 2012; Shinn, 2002; Tuunainen, 2002), these models need to be applied to real situations, with a view of refining them and overcoming some of their limitations.

For this reason, based on a review of the theory of some of the most relevant conceptual models in the area of innovation, we have selected the Triple Helix model (Etzkowitz, 1997; Etzkowitz & Leydesdorff, 2000) as a theoretical framework, and test it against a case study as a methodology for research. The aim of this study is thus to validate and extend the Triple Helix model as a framework of reference applied to the case of the design of the RDI strategy for the Dominican Republic for 2001–2007. The results have validated some of the model's assumptions and the usefulness of the Knowledge, Consensus and Innovation Spaces, as well as highlighting some of the limitations of the model.

The case studied is that of the design of an RDI strategy for the Dominican Republic. One important virtue of the case is its originality; the design was not acquired or copied from other countries, but was the result of the joint efforts of a team made up of Dominican authorities and international experts. The value of this case study therefore lies in highlighting the importance of international cooperation in speeding up the process of transferring scientific and technological knowledge from universities to industry. The content of this case of study is related to prior experiences in Open Innovation Diplomacy (Carayannis and Campbell, 2011), that show an example of how technical knowledge can be exchanged between countries about the best ways of using sustainable sources of energy. In our case, the fact that all the agents involved (University, Industry and Government) were represented on the work group together with the international make-up of the group helped generate trust and social impact (Carayannis and Campbell, 2009, 2011). The working methodology also constitutes a process that can be transferred to other economies without requiring major initial investment, through the use of the surveys of technological innovation and R&D, templates of meetings organization and the case study methodology as data support and previous evidences.

The results of this strategic design are relevant both because of the achievements obtained in the original context and the transferability of the model to other contexts. Such relevance sufficiently justifies this work.

University–Industry–Government relations and innovation strategy

The academic literature establishes different approaches to relations between science and innovation. The approach of the innovation system represents a major step forward for that of the innovation process, which no longer depends only on the activity generated within firms, but requires the interaction of agents from the environment, knowledge generators and innovation-incentivising policies. This approach is particularly relevant in stimulating University–Industry–Government relations and transferring research results, giving rise to the Triple Helix model devised by Etzkowitz and Leydesdorff (2000).

In this sense, we should not forget the contribution of the Open Innovation (OI) model, which opposes traditional models in that research and development are performed internally and later rolled out onto the market. The Open Innovation model posits that firms' internal research and development are elements that come from the market itself and from society in general. This means that valuable ideas can come from inside or outside the firm (Chesbrough, 2003). However, reducing the focus of open innovation in small and medium enterprises (SMEs) to science-driven innovations would seriously bias the understanding of open innovation for this category of firms (Van de Vrande et al., 2009). The Open Innovation model considers that firm is a constituent in a network, and also study the impact of institutional conditions on innovation performance (Huizingh, 2011; Samara et al., 2012). Analogously with the previous argument, valuable ideas can come from both inside and outside the national setting in which firms from the country in question operate (Elzinga, 2004).