Journal of Business Research xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

Journal of Business Research

journal homepage: www.elsevier.com/locate/jbusres

Antecedents to innovation performance in SMEs: A mixed methods approach☆

Carla Curado[a,*], Lucía Muñoz-Pascual[b], Jesús Galende[b]

[a] Advance/CSG ISEG, Universidade de Lisboa, Rua do quelhas, 6, 1200-109 Lisboa, Portugal
[b] IME/Department of Business Administration and Management, University of Salamanca, Campus Miguel de Unamuno, s/n, 37007, Salamanca, Spain

ARTICLE INFO

Keywords:
Product innovation performance
Mixed methods
Structural equations modeling
Fuzzy-set qualitative comparative analysis

ABSTRACT

The studies on product innovation performance (PIP) are not conclusive. In this paper, we use a mixed methods approach to fill this gap. First, we use structural equation modeling to determine the antecedents to PIP and whether a manager's training level moderates the relation between the antecedents and PIP. Second, we apply a fuzzy-set qualitative comparative analysis (fsQCA) to identify alternative configurations that lead either to PIP or its absence. The sample comprises data from an online survey of 367 certified innovative Portuguese small and medium enterprises. The results show that the antecedents to information technology support and knowledge sharing positively affect an organization's learning capacity that in turn positively affects PIP. No evidence exists for the moderating effect of the training level. The efficiency of PIP positively affects its efficacy. Alternative configurations exist that lead to the presence or absence of this efficacy.

1. Introduction

Ambiguity exists on which antecedents make firms innovative. Therefore, we analyze the following research question: what are the key antecedents that lead to product innovation performance (PIP) in firms? PIP is a dynamic process that involves the technical design, manufacturing, management, and commercial activities that a firm uses to market a new or improved product (Alegre & Chiva, 2008). PIP has two key dimensions: efficiency and efficacy. Efficiency reflects the mechanisms or efforts that the firm uses to innovate, and efficacy reflects the final results of innovation (Amabile, Conti, Coon, Lazenby, & Herron, 1996). Therefore, efficiency helps to achieve efficacy.

This paper presents an original model to explain PIP by identifying antecedents at different organizational levels, which is uncommon in the literature (Lo, 2016). Building on the resource-based view (RBV) of the firm and its related theories, the dynamic capabilities view and the knowledge-based view, we consider three antecedents to PIP: ITS, KS, and OLC.

Firms act in complex, dynamic, and interconnected environments that are full of uncertainty and are constantly changing. Therefore, the study of a firm's innovation only through internal antecedents gives an incomplete view. Thus, the research on innovation must also account for external antecedents or mechanisms that firms obtain from networks with other firms. Knowledge sharing (KS) is the firm's ability to exploit the information and knowledge it gains from trading partners and to identify market opportunities (Shih, Hsu, Zhu, & Balasubramanian, 2012).

The internal antecedents to PIP involve aspects related to the firm's own organizational structure. Firms use information technology support (ITS) that they implement at all organizational levels and functional areas. Employees use ITS for access to knowledge and relevant information within the firm (Gupta & Govindarajan, 2000; Lee & Choi, 2003).

Therefore, if firms succeed in implementing strong ITS mechanisms and can exchange knowledge inside and outside the firm, they will acquire an important dynamic capability: organizational learning capability (OLC). This is the firms' capability to absorb new technologies and knowledge that makes them stronger in complex environments and that helps them to better adapt to changes. In addition, this capability can lead directly to PIP in a sustainable way. Innovative firms are successful in implementing these mechanisms. Further, managers with a higher training level (TL) are better able to take risks, to analyze the environment, or to make changes in the firm. This paper presents the TL as a possible moderator of the relations between the antecedents and PIP.

In this paper, we address these antecedents at the individual,

☆ The authors are grateful for the support provided by FCT (Fundação para a Ciência e Tecnologia - Portugal) under the project UID/SOC/04521/2013, by State Office for Scientific and Technical Research of the Spanish Ministry of Economy and Competitiveness (project ECO2016-76876-R) and by Castile and Leon Regional Ministry of Education in Spain (project SA027U16).

* Corresponding author.
E-mail addresses: ccurado@iseg.ulisboa.pt (C. Curado), luciamp@usal.es (L. Muñoz-Pascual), jgalende@usal.es (J. Galende).

https://doi.org/10.1016/j.jbusres.2017.12.056
Received 18 June 2017; Received in revised form 29 December 2017; Accepted 30 December 2017

organizational, and inter-organizational levels. So far, few studies consider both the internal and external antecedents to PIPs or their effects at different organizational levels (Lo, 2016). First, we apply structural equation modeling (SEM) to determine the antecedents. And then, we apply a fuzzy-set qualitative comparative analysis (fsQCA) to identify alternative configurations that either lead to PIP or its absence.

This paper contributes to the literature on PIP in the following ways: The main contribution is the use of primary information from managers of certified innovative SMEs in Portugal. The second contribution is the identification of key antecedents that contribute to PIP. Third, the model proposes the existence of an individual variable (TL) that can enhance the relations between the antecedents and PIP. Fourth, we uncover the relation between efficiency and efficacy that affects PIP. Fifth, we discover alternative configurations that lead to PIP efficacy and those that lead to its absence. Sixth, we make an important contribution to the empirical literature by testing the model through a mixed methods approach, which produces more solvent and robust results. On the one hand, we apply a quantitative method to verify the hypotheses of the model on PIP (H1–H5). On the other hand, we apply a qualitative method to identify alternative pathways within the proposed model that lead to PIP efficacy (H6–H7). Fig. 1 illustrates the model.

The remainder of this paper proceeds as follows: Section 2 provides a comprehensive acknowledgment of the constructs and the formulation of seven hypotheses. In Section 3, we introduce the methods, the sample, and the measurement assessment. Section 4 contains the survey's results (analysis and results of the structural equation modeling and analysis and results of the fuzzy-set qualitative comparative analysis). Section 5 concludes with a discussion and conclusions.

2. Literature review and hypothesis development

2.1. Organizational theories

Although many studies address OLC and PIP (e.g., Alegre & Chiva, 2008; Alegre, Lapiedra, & Chiva, 2006), few involve different organizational levels (Hult, Hurley, & Knight, 2004; Lo, 2016). Following Argote, McEvily, and Reagans (2003), Bueno and Ordoñez (2004), and Koc and Ceylan (2006) we propose that the antecedents to OLC occur at three organizational levels (individual, organizational, and inter-organizational). We follow the suggestion because identifying an antecedent at only one level does not fully explain the relation between OLC and PIP.

We use the RBV that states a firm has unique and different combinations of resources and capabilities (Barney & Clark, 2007). By using exclusive and new combinations of resources, a firm can achieve learning capacity and PIP (Acedo, Barroso, Casillas, & Galan, 2006; Lockett, O'Shea, & Wright, 2008) that gives it a sustainable competitive advantage (Peteraf, 1993). The RBV highlights a firm's internal factors as a source of competitive advantage. This approach shows that internal factors might be tangible, such as ITS, or intangible, such as knowledge. These resources have certain characteristics – for instance, scarcity, value, imperfect imitability, irreplaceability, and rent appropriation – that are crucial sources of competitive advantage (Barney & Clark, 2007).

Several other approaches derive from the RBV: the knowledge-based view (KBV), which considers knowledge as a special resource; and the dynamic capabilities view (DCV), which considers OLC to be a dynamic capability within the organization. According to the DCV, OLC can emerge from antecedents at different levels. Following Gold, Malhotra, and Segars (2001), ITS at the organizational level serves knowledge management, and KS at the inter-organizational level is an antecedent to OLC (Shih et al., 2012). The KS also supports the KBV that says a firm can acquire, transfer, and embed context-specific knowledge

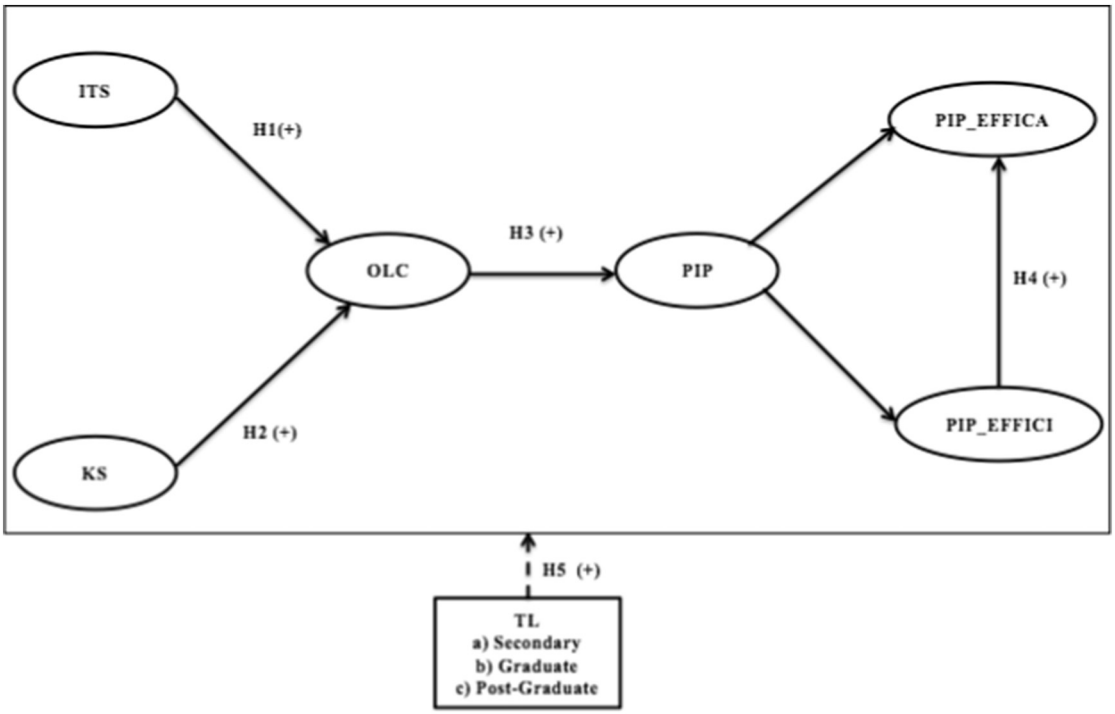

Fig. 1. Research model.
Note: This paper uses the SEM for H1–H5 (antecedents or causal conditions of PIP) and the fsQCA for H6–H7 (paths condictions for PIP_EFFICA).