ESTADO DEL ARTE DEL PROYECTO: “Open Innovation in SMEs: Evidence from the Colombian and European innovation survey”

AUTORES Liney Manjarres Henriquez, Yulineth Gomez Charris, Jose Hervas Oliver, Odette Chams Anturi, Zulmeira Herrera Fontalvo

RESUMEN: SME open innovation has received limited attention, especially among SMEs. When it is analyzed in SMEs, it is mostly associated to new product development, overlooking the fact that process innovation is a strategy commonly pursued by SMEs that requires organizing search strategies or external knowledge sourcing for that purpose. Focusing on European firms (SEMs) and classifying for their technological innovation (product, process or product & process orientation), this project is devoted to the understanding of key external sources of SME innovation and also showing how open innovation is linked to SME performance. The results will contribute to the literature on SME open innovation.

MARCO TEÓRICO: THEORETICAL FRAMEWORK The study of external knowledge sourcing, as a form of inbound open innovation, requires the consideration of internal capabilities that complement search strategies (e.g. Laursen & Salter, 2006; Hervas-Oliver et al., 2014; Brunswicker & Vanhaverbeke, 2015; Pérez, 2019). Thus, we focus on disentangling how SMEs construct and configure their process-oriented innovation strategy, considering the interplay of both internal and external (search strategies) sources of knowledge to innovate. Internal capabilities represent a firm’s in-house innovation activities that also facilitate the access to external sources of knowledge, facilitating the integration and exploitation for innovation (Cohen & Levinthal, 1990; Caro Moreno, 2016). In the specific case of process development, internal capabilities constitute those routines to access, adapt and integrate external knowledge and enable firms to benefit from those external sources or search strategies (Robertson, Casali, & Jacobson, 2012; Buitrago, Duque & Robledo, 2020). Thus, in this study we refer to SME innovative strategy as the combination of both internal and external (openness) sources of knowledge to innovate in process-oriented SMEs. This combination builds a complex system of (process-based) capabilities, resembling that view of complementarities in the RBV (resource-based view of the firm, e.g. Peteraf (1993). According to this perspective, the combination of internal (to the firm) and external (Dyer & Singh, 1998) sources of knowledge configures a synergistic and complex higher-order capability to innovate that complements and reinforces each component, thereby forming interrelationships difficult to imitate, contributing thus to improving a firm’s innovation capability from the complex integration of internal and external sources of knowledge competitive advantage: this complex integration of diverse sources, produces an inimitable system that improves all concerned (e.g. Rivkin, 2000; Teece, Pisano, & Shuen, 1997; Espejel García, Illescas Marín, Hernández Montes, Santos Moreno & Ramírez García, 2018), forming a SME innovative strategy. As Ortega-Argules et al., (2009) point out, addressing SMEs requires consideration of the high heterogeneity of innovative strategies in SMEs, ranging from R&D performers to those non-R&D-based more focused on networking.
Deepening on SME heterogeneity, as Spithoven et al., (2012) point out, different categories of SMEs may cope differently with the challenges related to open innovation. Differing search strategies, however, are contingent on the type of innovation capabilities a firm possesses: external sourcing is facilitated (and limited) by the internal capabilities that a firm possesses (or lack thereof) (Chesbrough, 2006; Cohen & Levinthal, 1990). Despite the rapid growth of the term open innovation, characterized by Chesbrough, (2003), literature on search strategies within the realm of innovation proliferated long before. Innovation and its determinants have been extensively studied by seminal works such as those of (Thomas J. Allen & Cohen, 1969; Thomas John Allen, 1977; Hippel, 1988; Kline & Rosenberg, 1986; Pavitt, 1984; Rothwell, 1974; Teece, 1986), among others, who claimed that external linkages and sources of knowledge play an important role in innovation. Such works shifted gradually scholars’ conversation on innovation toward firms’ boundary-spanning search strategies, and thus served to crystallized the key importance of external sources of knowledge to a firm’s performance (e.g. Dyer & Singh, 1998). A firm’s external knowledge sourcing indicates how firms build their search strategy in order to access different types of external (to the firm) knowledge. Thus, the differing and distinct nature of interactions with external innovation actors clarifies our understanding of search strategy in SMEs (Dahlander & Gann, 2010). External knowledge sourcing spans many types of partners providing access to different natures of knowledge such as industry (supply-chain), science, technology, etc. (Hippel, 1988; Kline & Rosenberg, 1986). This diversity of sources ranges from customers, suppliers, competitors or consultants to universities, seminars or research organizations, among many others (e.g. Eurostat, 2005; Laursen & Salter, 2006). Each different source of external knowledge to innovate provides a very different value and, more importantly, implies a specific combination with a firm’s internal capabilities that enable the access, integration and utilization of that particular type of external source of knowledge (Brunswicker & Vanhaverbeke, 2015; Cohen & Levinthal, 1990). SMEs use non-internal means of innovation more than large firms, as they consider alliances or network as ways to extend their technological competences (Edwards, Shaw, & Collier, 2005; Rothwell, 1991), meaning that networking is a crucial strategy to get access to knowledge and thus innovate (S. Lee, Park, Yoon, & Park, 2010; Robertson et al., 2012:825), especially in bounded regional ecosystems (Radziwon & Bogers, 2018). Despite this propensity to networking, SMEs present rather weak internal innovation capabilities and a poor absorptive capacity but they are still deeply embedded in a networking process mainly with suppliers and mainly limited to the supply-chain (Heidenreich, 2009; Rammer et al., 2009; Spithoven et al., 2012). In this context, Rammer et al., (2009) empirically show how innovative SMEs rely heavily on external knowledge, such as that embodied in capital formation or that absorbed through direct technological acquisition from suppliers. Similarly, Heidenreich, (2009) characterizes SMEs as those companies that mainly develop process innovations and present strong dependencies on the external provision of machines, equipment and software, being suppliers the most important source for their information and knowledge to innovate. This external orientation is the typical supplier-driven category (Pavitt, 1984) and fits within those less advanced embodied-knowledge SMEs.
ESTADO DEL ARTE: El estudio de la fuente de conocimiento externo, como una forma de innovación abierta, requiere la consideración de capacidades internas que complementan estrategias de búsqueda (e.g. Laursen & Salter, 2006; Hervas-Oliver et al., 2014; Brunswicker & Vanhaverbeke, 2015). Así, nos enfocamos en desentrañar cómo las PYMEs construyen y configuran su estrategia de innovación orientada al proceso, considerando la interacción de ambas fuentes de conocimiento internas y externas (estrategias de búsqueda). Las capacidades internas representan las actividades de innovación en la oficina que también facilitan el acceso a fuentes externas de conocimiento, facilitando la integración y explotación del conocimiento para la innovación (Cohen & Levinthal, 1990). En el caso específico de desarrollo de proceso, las capacidades internas constituyen las rutas para acceder, adaptar e integrar conocimiento externo y permitir a las PYMEs aprovechar de esas fuentes externas o estrategias de búsqueda (Robertson, Casali, & Jacobson, 2012). Por lo tanto, en este estudio referimos a la estrategia innovadora de las PYMEs como la combinación de ambas fuentes internas y externas (abierto) de conocimiento para innovar en PYMEs orientadas al proceso. Esta combinación construye un sistema complejo de capacidades basado en procesos, que refleja la visión de complementariedades en la RBV (vista basada en recursos de la empresa, e.g. Peteraf, 1993). Según esta perspectiva, la combinación de internas (a la empresa) y externas (Dyer & Singh, 1998) fuentes de conocimiento configuran una capacidad de innovación productiva y compleja superior que complementa e impulsa cada componente, formando interrelaciones difíciles de imitar, contribuyendo a mejorar la capacidad de innovación del sistema de integración de fuentes de conocimiento diversas, produciendo un sistema inimitable que beneficia a todas las partes (e.g. Rivkin, 2000; Teece, Pisano, & Shuen, 1997), formando una estrategia innovadora de las PYMEs. Como Ortega-Argiles et al., (2009) destacan, el abordaje de las PYMEs requiere considerar la alta heterogeneidad de las estrategias innovadoras en PYMEs, que varían desde actuadores de R&D a aquellos no R&D más enfocados en la red. La profundización en la heterogeneidad de las PYMEs, como Spithoven et al., (2012) destacan, diferentes categorías de PYMEs pueden diferir con las desafíos relacionados con la innovación abierta. Diversas estrategias de búsqueda, sin embargo, son contingentes en el tipo de capacidades de innovación que una empresa posee: la fuente de conocimiento externo es facilitada (y limitada) por las capacidades internales que una empresa posee (o falta de ellas) (Chesbrough, 2006; Cohen & Levinthal, 1990). A pesar del rápido crecimiento de la metodología de innovación abierta, caracterizada por Chesbrough, (2003), la literatura sobre estrategias de búsqueda dentro del ámbito de la innovación proliferó a largo plazo. La innovación y sus determinantes han sido ampliamente estudiados por obras fundamentales como las de (Thomas J. Allen & Cohen, 1969; Thomas John Allen, 1977; Hippel, 1988; Kline & Rosenberg, 1986; Pavitt, 1984; Rothwell, 1974; Teece, 1986), entre otros, quienes afirmaron que las vinculaciones y fuentes de conocimiento externo desempeñan un papel importante en la innovación. Tales trabajos lograron paulatinamente que los investigadores conversaran sobre la innovación hacia estrategias de búsqueda que atraviesan las fronteras de las empresas, y, por lo tanto, sirvieron para cristalizar la importancia de las fuentes de conocimiento externo en el rendimiento de la empresa (e.g. Dyer & Singh, 1998). La fuente de conocimiento externo busca indicar cómo las empresas construyen su estrategia de búsqueda para acceder a diferentes tipos de conocimiento externo (a la empresa) para innovar. Así, el diferente y distinto carácter de las interacciones con los actores de innovación externo clarifica nuestra comprensión de la estrategia de búsqueda en PYMEs (Dahlander...
External knowledge sourcing spans many types of partners providing access to different natures of knowledge such as industry (supply-chain), science, technology, etc. (Hippel, 1988; Kline & Rosenberg, 1986). This diversity of sources ranges from customers, suppliers, competitors or consultants to universities, seminars or research organizations, among many others (e.g. Eurostat, 2005; Laursen & Salter, 2006). Each different source of external knowledge to innovate provides a very different value and, more importantly, implies a specific combination with a firm’s internal capabilities that enable the access, integration and utilization of that particular type of external source of knowledge (Brunswicker & Vanhaverbeke, 2015; Cohen & Levinthal, 1990). SMEs use non-internal means of innovation more than large firms, as they consider alliances or network as ways to extend their technological competences (Edwards, Shaw, & Collier, 2005; Rothwell, 1991), meaning that networking is a crucial strategy to get access to knowledge and thus innovate (S. Lee, Park, Yoon, & Park, 2010; Robertson et al., 2012:825), especially in bounded regional ecosystems (Radziwon & Bogers, 2018). Despite this propensity to networking, SMEs present rather weak internal innovation capabilities and a poor absorptive capacity but they are still deeply embedded in a networking process mainly with suppliers and mainly limited to the supply-chain (Heidenreich, 2009; Rammer et al., 2009; Spithoven et al., 2012).

In this context, Rammer et al., (2009) empirically show how innovative SMEs rely heavily on external knowledge, such as that embodied in capital formation or that absorbed through direct technological acquisition from suppliers. Similarly, Heidenreich, (2009) characterizes SMEs as those companies that mainly develop process innovations and present strong dependencies on the external provision of machines, equipment and software, being suppliers the most important source for their information and knowledge to innovate. This external orientation is the typical supplier-driven category (Pavitt, 1984) and fits within those less advanced embodied-knowledge SMEs.

BIBLIOGRAFÍA


• Caro Moreno, J. (2016). Funding of technological innovation in the services sector in Colombia. ECONÓMICAS CUC, 37(2), 89-114. https://doi.org/10.17981/econcuc.37.2.2016.05


• Footnotes to research on management innovation. Organization Studies, 35(9), 1265–1285.
