Collaborating to innovate: Effects on customer knowledge management and performance ☆

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ABSTRACT

Scholars regard customer knowledge management (CKM) as a strategic resource for businesses to improve innovation, facilitate the detection of new market opportunities, and support long-term customer relationship management. However, literature suffers from a lack of understanding of customer collaboration's role in the innovation process and innovation orientation in CKM. Accordingly, this paper tests a model examining how both variables act as antecedents of CKM. The model also explores CKM and customer collaboration's effect on marketing results. Findings have important academic and managerial implications, and show that collaboration with customers and openness to innovation are key inputs because of their effects on CKM and marketing results.
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1. Introduction

SMEs are the backbone of Europe's economy, representing around 99% of all European companies and account for two thirds of private sector jobs (European Commission, 2013). Although European economies gradually recover in 2011, companies in OECD countries still cope with recession, with a lack of financial support, and with a fierce labor cost competition in shrinking domestic markets (OECD, 2011). Innovation is a key driver of modern firms' growth and development. Innovation enables organizations adapt to changing environments to increase business efficiency. Companies investing in knowledge and innovation management will more likely survive and improve their performance while maintaining their competitive advantage (Pil & Holwelg, 2003). Eisenhardt and Martin (2000) identify knowledge as the most important strategic resource for building sustainable competitive advantage. This approach is consistent with the service-dominant logic (SDL) framework. Lusch, Vargo, and O'Brien (2007) define knowledge as the basis for sustainable development of competitive advantage, by arguing that innovation capacity and competitiveness require knowledge (Nonaka & Takeuchi, 1995). Knowledge and innovation are thus inseparable (Prahalad & Ramaswamy, 2004).

Sharing knowledge through collaborative innovation is increasingly important. Much research demonstrates that knowledge management implementation enhances successful innovation activities (Alegre, Sengupta, & Lapiedra, 2011; Nesta & Saviotti, 2005). SDL researchers increasingly highlight customer collaboration in service provision and innovation (Vargo & Lusch, 2004). Customer collaboration allows organizations to learn, to meet customer demands, and to improve performance (Prahalad & Ramaswamy, 2004).

This research increases literature's value by combining three isolated theories (the resource-based theory for innovation orientation, SDL theory for customer collaboration, and organizational learning theory for CKM). These theories provide a framework for testing a model gaining insight on the effect of customer collaboration, innovation orientation, and CKM on marketing results. This research also empirically tests proposition 2 by Lusch et al. (2007, p. 8) that "collaborative competence is a primary determinant of a firm's acquiring the knowledge for competitive advantage" regarding customers' contribution in the innovation co-creation process.

2. Conceptual framework and hypotheses

According to the SDL approach, collaborative competence allows including customers and other external stakeholders such as business partners in the innovation process, and using them to foster change (Lusch et al., 2007). Customer collaboration in the innovation process refers to "information and feedback on specific issues" and "extensive consultation with users by means of interviews, focus group and team discussion" (Alam, 2002, p. 255).

Hurley and Hult (1998) define innovation orientation as a corporate culture actively seeking its members to innovate by encouraging them to create, contribute, and experiment new ideas at work.

Knowledge management comprises those organizational practices and dynamic capabilities in relation to (respectively) knowledge creation, preservation, and transfer. According to Alavi and Leidner (2001), knowledge management practices dimension results from knowledge application. This dimension consists of knowledge management systems, local abilities, and know-how. Implementing these components of knowledge management allows companies to perform several activities. Knowledge creation mainly affects the dynamic capabilities within knowledge management dimension. Cantner, Joel, and Schmidt (2009) empirically confirm the relationship between innovation orientation and knowledge management.

H1. Innovation orientation affects customer knowledge management directly and positively.

Lusch et al. (2007) posit that collaborative competence highly determines a firm's ability to acquire the knowledge for a competitive advantage. Fang, Palmatier, and Evans (2008) demonstrate that customer participation in a new product development positively affects information sharing and coordination effectiveness.

H2. Customer collaboration in the innovation process affects customer knowledge management directly and positively.

Vorhies and Morgan (2005) state that marketing results (or market efficiency) measure the degree to which companies achieve business objectives in relation to markets. Measures comprise market share, sales revenues, customer acquisition, and customer retention. Some studies, such as that of Santos, González, and Lopez (2013), empirically show that customer participation positively affects customer outcomes such as loyalty, customer satisfaction, and added value, and, consequently, affects business results like sales and market share. Ballantyne, Varey, Frow, and Payne (2008), and Vargo and Lusch (2004) indicate that customer collaboration positively affects business results.

H3. Customer collaboration in the innovation process affects marketing results directly and positively.

Finally, numerous studies (Massey, Montoya-Weiss, & O'Driscoll, 2002; Zack, McKeen, & Singh, 2009) report a positive relationship between knowledge management and organizational performance. Economists also demonstrate a positive relationship between knowledge management and financial results such as sales, market share, and profitability (Chadam & Pastuszak, 2005; Huang & Shih, 2009).

H4. Customer knowledge management in the innovation process affects marketing results directly and positively.

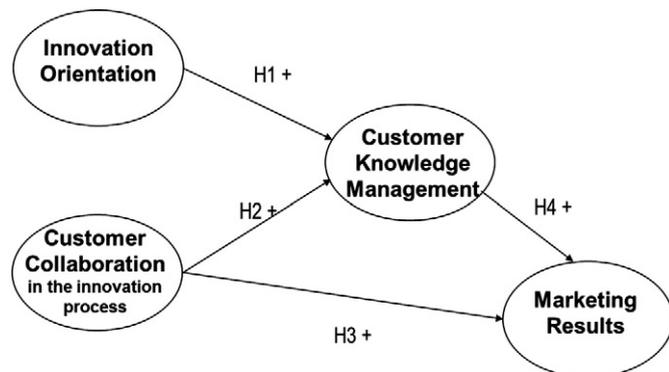According to the previous discussion, Fig. 1 displays the research model.

Fig. 1. Proposed model.

3. Methodology and data analysis

A survey to 210 companies in Valencia (Spain) provides the sample data. Valencia is the third largest city in Spain after Madrid and Barcelona. Before the quantitative phase, a dynamic group with eight representatives of the major business associations in Valencia helped verifying and refining relevant variables arising from literature review. This process provided the adapted variables for the questionnaire. According to this preliminary qualitative information and company owners being key informants, data collection took place using random stratified probability sampling with proportional allocation to main economic sectors to ensure the representativeness of the population under study. Personal interviews responded to a standard questionnaire.

Most companies in the sample (96%) have fewer than 20 employees, and 60% of the companies are more than six years old. In 81.5% of the companies, managers or owners are older than 35 years, and 69.5% of the managers or owners have a basic to medium training level. The resulting sample pictures the population under study.

Customer collaboration measurement uses Ordanini and Parasuraman's (2011) scale. Innovation orientation assessment follows Santos and Álvarez's (2007) scale. The CKM measurement instrument adapts Alegre et al.'s (2011)scale, whereas marketing results measurement uses Vorhies and Morgan's (2005) scale. The measurement of all constructs uses a five-item Likert scale (1 = completely disagree; to 5 = completely agree).

To test the research model, this study uses the partial least square (PLS) technique, a variance-based structural equation modeling (SEM) method. This study uses the SmartPLS software (Ringle, Wende, & Will, 2005) simultaneously for the measurement model and the structural model analysis.

4. Results

Results confirm constructs' high internal consistencies. Cronbach's alpha (higher than 0.9 for all measures) verifies validity. Bagozzi and Yi's (1988) composite reliability index (all values higher than 0.8), and Fornell and Larcker's (1981) average variance extracted index (higher than 0.7 for all measures) yield positive results.

All items load on their hypothesized factors, and estimates are positive and significant. The R^2 measure for all the dependent factors is above 0.1, critical level for Falk and Miller (1992). Values for the Q^2 measure illustrate the model's sufficient predictive ability (above 0 in all cases).

Outcomes emphasize the relationships between customer collaboration, CKM, and marketing results. Results show that customer collaboration directly affects marketing results (H3: β = 0.098; p < 0.05), with a less intense relation than that CKM has with marketing results (H4: β = 0.405; p < 0.001). Data analysis also demonstrates that, through CKM, customer collaboration indirectly affects marketing results. Finally, results indicate that customer collaboration is a more influential antecedent of CKM (H2: β = 0.349; p < 0.001) than innovation orientation is (H1: β = 0.101; p < 0.05). Table 1 contains these results.

Table 1
Structural modeling results.

Hypothesis	Support	β path coefficients	t-Value bootstrap
H1: innovation orientation → CKM	Yes	0.101[**]	2.219
H2: customer collaboration → CKM	Yes	0.349[*]	6.821
H3: customer collaboration → marketing results	Yes	0.098[**]	2.006
H4: CKM → marketing results	Yes	0.405[*]	7.98

R^2 (CKM) = 0.1571; R^2 (marketing results) = 0.2044.
Q^2 (CKM) = 0.0972; Q^2 (marketing results) = 0.0221.
[*] p < 0.001.
[**] p < 0.05.