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Creativity and Innovation in the Context of Firms

Kyriaki Hadjikosta

Warwick Business School
The University of Warwick
Coventry, UK, CV4 7AL

Tamara Friedrich

Warwick Business School
The University of Warwick
Coventry, UK, CV4 7AL

Corresponding author: Tamara Friedrich (Tamara.Friedrich@wbs.ac.uk)

Abstract

In this chapter we examine how innovation can become embedded and given legitimacy within a firm. Specifically, we look at how the strategies and practices of Top Management Teams, Human Resources, Finance, Purchasing, Marketing, Sales, Legal, and Departmental Management Teams can promote organizational innovation both directly and indirectly. We highlight that innovation can be facilitated not only by the unique strategies and practices of each functional area but also by the strategic alignment and collaboration between these parts of the organization. We have examined how the collaboration between key areas of the organization, such as between human resources and purchasing, or the legal and finance teams, may contribute to the organization's global innovation efforts. Informed by research findings, we offer practical advice to the leaders of each functional area as well the top management team of the organization. We have also made suggestions on directions for future research to organizational innovation scholars.

Keywords: creativity, innovation, top management teams, human resources, finance, purchasing, marketing, sales, legal

Creativity and Innovation in the Context of Firms

Introduction

As creativity and innovation are becoming increasingly important to organizational survival (Cox, 2005; European Union, 2009; Florida & Goodnight, 2005; Hennessey & Amabile, 2010; Ligon, Graham, Edwards, Osburn, & Hunter, 2012; Madden, 2017; Puccio & Cabra, 2010), organizations need to identify and implement strategies and practices that are conducive to creativity and innovation in order to remain competitive. Typically, organizations limit their investment or support for innovation to specific areas of the organization, such as Research and Development. However, as we discuss in this chapter, embedding support for innovation across the organization is important for legitimizing an organization's innovation strategy.

Thus, it is important to consider how the strategies and practices of each department and the strategies and practices of top management teams can contribute to organizational creativity and innovation. In addressing this question, many scholars have focused on one function or a small group of functions at a time, omitting the inspection of the organization as a whole. As this chapter highlights, however, it is important to take a better look at the greater picture. The discussion that follows reveals that when organizational functions collaborate (cross-functional integrations) and align their unique strategies, organizational innovation is further supported, suggesting there is a value in implementing strategic alignment and collaboration across an organization.

For example, the alignment of the Human Resources (HR) innovation strategy with the corporate strategy can guide the development of Human Resources Management (HRM) practices that help achieve strategic objectives (Jiménez-Jiménez & Sanz-Valle, 2005), the alignment of Purchasing innovation strategies can lead to successful new product development (NPD) (Luzzini & Ronchi, 2011), and the alignment of Marketing innovation strategies can

increase the perceived need for integration with other departments (for example, a Marketing-R&D integration, Gupta et al., 1986), which can lead to the enhancement of Marketing's capabilities to capture customer needs (Weerawardena, 2003).

Note that the terms creativity and innovation are often used interchangeably in the literature (McLean, 2005). We refer to creativity as the process of generating novel and useful ideas (Amabile, 1988; Plucker, Beghetto, & Dow, 2004; Rhodes, 1961; Sawyer, 2012). Unlike other works that refer to innovation as something new (Damanpour, 1991) or the process of implementing new or imported ideas (Amabile, 1988; Ayyagari, Demirgüç-Kunt, & Maksimovic, 2011; Damanpour & Schneider, 2006; Shipton, Lin, Sanders, & Yang, 2017a), we refer to innovation as the combined process of generating and implementing ideas (Kanter, 1983; Thompson, 1965; Van de Ven, 1986; Van de Ven, Angle, & Poole, 2000).

The need for strategic alignment and collaboration between organizational functions is revealed through a review of how the unique strategies and practices of departments, top management teams, departmental management teams, individually and in coordination, contribute to innovation. In the remainder of the chapter we dedicate one section to the unique contributions of each function – Top Management Teams, Human Resources, Finance, Purchasing, Marketing, Sales, Legal, as well as Departmental Management Teams – and discuss the benefits of their cooperation and alignment with other functions. In each section we consider management implications and offer guidance for future research. We conclude the chapter with a call for further examination of the contributions of global strategic alignment and cross-functional collaboration for legitimizing innovation in the firm.

Top Management Teams

Vision

One important practice exercised by top management teams that can promote organizational innovation is the articulation and communication of a corporate vision (Martins

& Martins, 2002; Martins & Terblanche, 2003; Thamhain, 2003; Tidd & Bessant, 2013a): “*a transcended goal that represents shared values, has moral overtones, and provides meaning; it reflects what the organisation’s future could and should be*” (Andriopoulos, 2001, p. 834).

It is theorized that to be effective, a corporate vision needs to define objectives, clarify pathways toward achieving those objectives, act as a basis for decision-making (Mumford, Scott, Gaddis, & Strange, 2002) and be accompanied by inspirational communication that motivates, encourages, and instills pride in employees (Rafferty & Griffin, 2004). This is because such mission-oriented visions can direct the organization, concentrate its attention to innovations that support its vision, and create an organizational climate favorable to innovation (McDonald, 2007). Furthermore, it can act as the framework that guides idea generation by employees and idea oversight by leaders (Perkins, Lean, & Newbery, 2017), promote the belief that the organization is supportive of innovation, and create a culture that also promotes this belief (Sarros, Cooper, & Santora, 2011).

Leadership

The literature also suggests that top management teams can directly and indirectly influence innovation through their leadership styles or leadership characteristics (Elenkov & Manev, 2005; Hughes, Lee, Tian, Newman, & Legood, 2018). Several forms of leadership, including transformational leadership, high-quality leader-member exchange (LMX), transactional leadership, empowering leadership, authentic leadership, and servant leadership have exhibited correlations ranging from small to medium with creativity and innovation. While a lot of attention has been given to the positive effects of transformational leadership and high-quality LMX on creativity and innovation (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Amabile, Schatzel, Moneta, & Kramer, 2004; Elkins & Keller, 2003; Gumusluoglu & Ilsev, 2009; Jaiswal & Dhar, 2015; Jung, Wu, & Chow, 2008; Jung, Chow, & Wu, 2003; Scott & Bruce, 1994; Shin & Zhou, 2003), a more nuanced examination of the

effects of leadership style sub-factors (for example, intellectual stimulation and individual attention) is necessary before firm conclusions about the relationship between leadership and the innovation process are made (Friedrich, Mumford, Vessey, Beeler, & Eubanks, 2010; Hughes et al., 2018).

With findings suggesting that different leadership styles or leadership characteristics might be more effective at different stages of the innovation processes (Elenkov & Manev, 2005; Hughes et al., 2018), it is argued that leaders might have to adjust their leadership styles depending on the stage of the innovation process (Anderson, Potočnik, & Zhou, 2014), or, alternatively, multiple leaders may serve varying roles throughout the innovation process. For instance, senior leadership teams may adopt collective leadership in order to utilize varying skills necessary to initiate and manage innovative work (Friedrich & Zhong, 2017; Mumford, Mulhearn, Watts, Steele, & McIntosh, 2018b). More research is needed to clarify which are the most appropriate approaches, under what conditions, and for which types of innovation (for example, product, process, administrative, incremental, radical, exploitative, and explorative) (Friedrich, Mumford, Vessey, Beeler & Eubanks, 2010).

In addition, more attention needs to be given to the effects of top management teams' leadership on innovation. Though discussed indirectly as firm-level or organizational level leadership in the most recent comprehensive review (Hughes et al., 2018), only a small fraction of studies focus on the effects of top management teams on innovation (e.g., Nijstad, Berger-Selman, & De Dreu, 2014). As innovation should be embedded across the organization, it is important to understand how the team at the top, which includes leaders of key aspects of the organization, can be composed or what collection of leadership styles would be important to have on the team. This would be an important area for future innovation and leadership research to further understand how senior leaders can give legitimacy and support to innovation efforts.

Culture and Climate

In addition to their contributions through vision and leadership, top management teams can affect the innovation process by shaping the organizational climate and culture. One argument is that senior leadership can essentially shape the organizational culture, practices, and procedures that will allow for innovation to thrive by giving priority to innovation and installing innovation-oriented practices and procedures (Ahmed, 1998).

Focusing on culture, which can be defined as “*all the institutionalized ways and the implicit beliefs, norms, values and premises which underline and govern behavior*” (Ahmed, 1998, p. 32), the literature suggests that organizational cultures supportive of innovation emphasize learning and development, divergence, participation in decision-making, empowerment, communication, idea generation, debate, caring, freedom, and autonomy (Ahmed, 1998; Andriopoulos, 2001; Hurley & Hult, 1998; Martins & Terblanche, 2003; Naranjo-Valencia, Jiménez-Jiménez, & Sanz-Valle, 2016; Woodman, Sawyer, & Griffin, 1993). It is also proposed that innovative organizations engage in risk-taking and risk management (Ahmed, 1998; Martins & Terblanche, 2003; Woodman et al., 1993), embrace mistakes and failure as learning experiences (Martins & Terblanche, 2003), and maintain a focus on their relations with external actors, such as suppliers and customers, rather than internal affairs (Ahmed, 1998; Cameron & Quinn, 2011; Naranjo-Valencia et al., 2016).

Similar characteristics to organizational culture are also reflected in the organizational climate for creativity, which can be defined as the “*perceptions of environmental conditions that shape individuals’ beliefs about the work environment*” (Friedrich, Stenmark, & Mumford, 2011, p. 208). Early research on organizational innovation identified that environmental conditions as well as individuals’ perceptions about those conditions promote or hinder innovation by increasing or decreasing individuals’ intrinsic motivation to engage in innovative work (Amabile, 1988, 1998; Amabile et al., 1996; Perkins et al., 2017; Woodman et al., 1993).

The list of perceptions about work conditions that are instrumental to innovation includes believing that you have positive and supportive peer and supervisory relationships, thinking that you work on challenging and interesting projects with a clear mission, autonomy, and freedom, feeling that you receive support, encouragement, and recognition from supervisors and top management, and maintaining that you work for a well-connected organization that is committed to quality and originality, is eager to provide the necessary resources, is willing to take risks and manage uncertainty and ambiguity, is encouraging of participation and debate over ideas, and is rewarding of innovation (Hunter, Bedell, & Mumford, 2007; Soriano de Alencar, 2012). Top management teams that want to ensure that their efforts to support innovation are truly embedded should consider the perceptions of those in the organization. It may be beneficial to assess current perceptions of these climate factors and look for strengths and weaknesses across the organization (Amabile et al., 1996). Identifying areas of strength, for instance strong perceptions of autonomy or challenging, engaging work, may be points to capitalize on, while identifying areas of weakness will provide an indication for where key barriers to innovation may be. Efforts to legitimize innovation in the firm through policies and procedures across different departments may well be undermined if the climate is not supportive.

Structure

Beyond culture and climate, leaders can shape another component of the organization that influences innovation: the organizational structure (Schein, 2010). Leaders might organize their businesses from rigid, mechanistic structures with centralized decision-making to organic structures with decentralized decision-making (Schein, 2010, p. 251). In addition to decision-making, these organizational structures determine the organization's communication channels, with mechanistic structures often characterized by vertical flow of information and more organic structures typically characterized by lateral flow of information (McLean, 2005). With

innovation flourishing under conditions of employee participation in decision-making and smooth and cross-functional exchange of knowledge and ideas, it is expected that structures with less centralized decision-making and more lateral communication channels will encourage innovation (Ahmed, 1998; Martins & Terblanche, 2003; Woodman et al., 1993).

The optimal degree of centralization of decision-making is still debated, with studies reporting different results depending on the type of innovation under investigation (Damanpour & Aravind, 2012; Jansen, Van Den Bosch, & Volberda, 2006) and contemporary reviews recommending the adoption of the most appropriate, flexible, and adaptable structures under the given circumstances (Mitra, 2017a; Tidd & Bessant, 2013a). Despite the debate on the centralization of decision-making, there is consensus on the need for integrative organizational structures that allow for cross-functional collaboration and smooth, cross-functional flow of information, knowledge, and ideas (Ateş, van Raaij, & Wynstra, 2018; Ellegaard & Koch, 2012; Troy, Hirunyawipada, & Paswan, 2008). This agreement suggests that, regardless of the organization's level of decision-making centralization, senior management needs to work toward implementing more integrative organizational structures to promote innovation. This may include formal systems like knowledge management or idea sharing tools, or it may be less formal, like holding cross-departmental gatherings or town halls where information can be shared.

Strategy

Finally, top management teams can influence innovation through the innovation strategies they formulate and communicate across the organization. An innovation strategy, defined as "*a set of coherent, mutually reinforcing policies or behaviors aimed at achieving a specific competitive goal*" (Pisano, 2015, p. 46), can promote alignment across the organization, clarify objectives and priorities, concentrate efforts around these objectives and priorities (Pisano, 2015), guide the selection of innovations that align with the organization's

objectives (Dodgson, Salter, & Gann, 2008; Pisano, 2015), guide decision-making, attract creative talent (Dodgson et al., 2008), improve innovative capabilities (Yu, Dong, Shen, Khalifa, & Hao, 2013), improve business performance (Ezzi & Jarboui, 2016; Li, Zhang, & Chan, 2005; Rauch, Wiklund, Lumpkin, & Frese, 2009), and promote firm growth (Soininen, Martikainen, Puumalainen, & Kyläheiko, 2012). Evidence to support the positive relationship of strategy on innovative outcomes has been observed in a variety of contexts, such as small and medium UK manufacturing companies (Laforet, 2008), medium and large Chinese high-tech manufacturing companies (Guan, Yam, Tang, & Lau, 2009), small and medium Greek manufacturing companies (Avlonitis & Salavou, 2007), small Finish companies across a range of sectors (Soininen et al., 2012), Chinese companies implementing information technology portfolios (Yu et al., 2013), and Tunisian companies in R&D-intensive sectors (Ezzi & Jarboui, 2016).

The formulation of an innovation strategy involves the analysis of the organization's innovation processes, innovative capabilities, resources, strengths, weaknesses, challenges, and opportunities, the identification of innovations that will create the greatest value for the organization, and the development of resources, innovative capabilities, and innovation processes that will facilitate the organization's innovative efforts (Dodgson et al., 2008; Pisano, 2015; Tidd & Bessant, 2013c). The innovation strategy should be aligned with the organization's overall business strategy, while accommodating for the uncertainty entailed in innovation (Dodgson et al., 2008; Pisano, 2015), and must be adjusted in light of new information (Dodgson et al., 2008; Pisano, 2015; Tidd & Bessant, 2013c).

Summary

What can be learned from the preceding review is that, to promote organizational innovation, top management teams could formulate and communicate mission-oriented organizational visions which can guide innovative work and create a climate favorable to

innovation. They could install organizational practices and procedures that will generate cultures and climates favorable to innovation, as well as implement organizational structures that allow for smooth cross-functional collaboration and flow of information, knowledge, and ideas. Finally, they could articulate and communicate specific corporate innovation strategies, as these can promote alignment and focus for innovative work across the organization, helping to set objectives and priorities, guide decision-making, and attract creative talent.

Regarding leadership, practitioners should be aware that a number of leadership styles and leadership characteristics appear to be related to creativity and innovation (Elenkov & Manev, 2005; Hughes et al., 2018), suggesting that not one leadership style or characteristic is best at managing the innovation process from start to finish. To assist top management teams in adopting the appropriate leadership approaches under their organization's individual characteristics and innovation aims, the research community could focus on investigating the effects of top management team leadership on innovation as the number of studies investigating the effects of leadership on innovation at the top level is limited. Finally, innovation scholars could continue investigating and debating the optimal degree of decision-making centralization under a range of environmental conditions, organizational characteristics, and innovation aims in order to assist top management teams in installing the most beneficial degrees of decision-making centralization across their organizations.

Human Resources Department

Human Resource Management Practices

The Human Resources (HR) department undertakes a range of responsibilities, including the hiring of personnel with the desired knowledge and expertise, the further training of employees with skills necessary for the organization's success, the appraising and rewarding of personnel performance, and the management of personnel career paths (Belker, McCormick, & Topchik, 2012). The Human Resources Management (HRM) practices the department

follows in fulfilling these duties have a central role in creating and cultivating organizational cultures, capabilities, and knowledge reserves that support innovation. Having a corporate innovation strategy can guide the development and implementation of HRM practices that will help the organization achieve its innovation objectives (Jiménez-Jiménez & Sanz-Valle, 2005).

A number of positive relationships between innovation-oriented HRM practices and innovation have been reported in the literature (Cano & Cano, 2006; Chang, Gong, & Shum, 2011; Gupta & Singhal, 1993; Gutierrez-Gutierrez, Barrales-Molina, & Kaynak, 2018; Michie & Sheehan, 1999; Shipton, West Michael, Dawson, Birdi, & Patterson, 2006; Zhou, Hong, & Liu, 2013), with some authors concluding that HRM practices play a critical role in “*creating and sustaining a culture that supports creativity and innovation*” (McLean, 2005, p. 228). It is also accepted that the benefits become significantly greater when complementary HRM practices, an HRM system, are adopted together than when individual practices are adopted in isolation (Haneda & Ito, 2018; Jiménez-Jiménez & Sanz-Valle, 2005; Laursen & Foss, 2003; c.f. Cano & Cano, 2006). For example, permitting employees to participate in problem-solving will bear more fruits if the appropriate training is provided to them (Laursen & Foss, 2003). Conversely, employees will likely invest in their training if they are permitted to participate in problem-solving, especially if they are offered desirable intrinsic and extrinsic rewards to do so (Laursen & Foss, 2003).

Despite the overwhelmingly positive results, however, some findings call for caution in the implementation of HRM practices. First, there are some negative relationships between some HRM practices and innovation (for example, contingent pay and product innovation and technical innovation capabilities under conditions of low exploratory learning) (Beugelsdijk, 2008; Chang et al., 2011; Shipton et al., 2006; Zhou et al., 2013). In addition, not all practices are positively associated with all different forms of innovation (Haneda & Ito, 2018; Tan & Nasurdin, 2011). What is more, it might be easier to promote incremental innovation by

adopting innovation-oriented HRM practices than it is to promote radical innovation, as incremental innovation is positively associated with a greater number of HRM practices compared to radical innovation (Beugelsdijk, 2008). In light of such conflicting findings, more research is needed on the configurations of HRM systems that enable the desirable forms of innovation (Shipton, Sparrow, Budhwar, & Brown, 2017b)

Culture

There appears to be a mediating relationship between HRM systems, culture, and innovation performance. An HRM system that expands employees' knowledge and skills, enhances knowledge transfer and learning, rewards personnel for their performance, and emphasizes team development helps build a developmental culture that contributes to the improvement of new product and service creation, as has been shown in medium and large companies in Hong Kong (Lau & Ngo, 2004). HRM systems are also instrumental in creating a culture of knowledge sharing within organizations with a functional organizational structure (Currie & Kerrin, 2003) – an organizational structure that tends to create vertical communication channels rather than innovation-conducive lateral communication channels (Haneda & Ito, 2018). The relationship between HRM practices and innovation is summarized in Figure 1.

Insert Figure 1 here

Knowledge management capabilities

In addition to culture, innovation-oriented HRM practices can contribute to the creation and cultivation of knowledge management capabilities (KMCs) that promote innovation, including knowledge acquisition, sharing, and application. It is argued that innovation-oriented HRM practices focused on hiring, compensating, and promoting the careers of employees can enhance innovation performance by promoting knowledge acquisition and knowledge sharing (Scarborough, 2003). Supporting this early argument, studies on top Taiwanese companies and

large Malaysian manufacturing companies have shown that innovation-oriented HRM practices can enhance KMCs, which in turn can promote administrative innovation, new product and service development, and process development (Chen & Huang, 2009; Tan & Nasurdin, 2011).

Knowledge sharing in particular, which is theorized to be mediated by affective commitment (Camelo-Ordaz, García-Cruz, Sousa-Ginel, & Valle-Cabrera, 2011) (that is, “*identification with, involvement in, and emotional attachment to the organization*” (Allen & Meyer, 1996, p. 253), is considered vital in both idea generation and idea implementation. This is because having the capability and willingness to share existing knowledge and ideas with co-workers as well as external agents, such as customers and suppliers, can enable the co-creation of knowledge and ideas with external agents, such as suppliers (Hadaya & Cassivi, 2009; Veugelers, Bury, & Viaene, 2010), can drive the improvement of innovations informed by new knowledge and ideas (Handfield, 2006, p. 179), can facilitate a more efficient evaluation, implementation, and exploitation of new ideas through the organization’s internal and external communication channels (Shipton et al., 2017b; Thamhain, 2003), and can expand the organization’s knowledge reserves with knowledge and ideas that can be pursued or combined to generate new ideas within the firm (see also Purchasing Department).

Knowledge base

HRM practices can also help in the development and expansion of the organization’s knowledge base with new knowledge and ideas and, thus, can have another indirect influence on organizational innovation. Specifically, innovation-oriented HRM practices can positively influence individuals’ knowledge and skills (human capital), the collective knowledge embedded in the relationships among employees and among employees and external agents (relational capital), and the organization’s non-human reserves of knowledge (structural capital), which in turn can promote new product development and product improvements, and

improve manufacturing and market processes, production methods and processes, and marketing and administrative innovation, as shown in recent studies on technological and industrial companies in Spain (Donate, Peña, & Sánchez de Pablo, 2016; Kianto et al., 2017).

The composition of the organization's knowledge base can also influence innovative activity in two ways: organizations appear to engage in the innovation process differently depending on their knowledge base (Zhou & Wu, 2010) and organizations should, indeed, evaluate their knowledge base and engage in the innovation process differently depending on their knowledge (Tsai, Tsai, & Wang, 2012; Zhou & Li, 2012). Regarding the influences of knowledge base on innovation engagement, the existing research reveals that as organizations accumulate knowledge, they participate in exploitative innovation (that is, they exploit the accumulated knowledge in NPD) for new product development (NPD) at an accelerating rate (Zhou & Wu, 2010). At the same time, they partake in explorative innovation (that is, they explore new knowledge and skills in NPD) but only to a certain point; any further increase of accumulated knowledge decreases the organization's engagement in explorative innovation (Zhou & Wu, 2010).

In regards to how organizations should engage in innovation depending on their knowledge base composition, it is argued that organizations possessing a diverse knowledge base will need to share knowledge internally to produce radical innovations, that organizations possessing specialized knowledge will need to acquire market intelligence in order to deliver radical innovations (Zhou & Li, 2012), and that organizations with a lot of accumulated knowledge can perform better in NPD by establishing firm-supplier collaborations (Tsai et al., 2012). Taken together, the findings on the overall impact of an organization's knowledge base on innovation highlights the need for organizations to evaluate their knowledge base and select and pursue the innovative activities that will move them toward their innovation aims.

Summary

In summary, the HR department can promote organizational innovation through its innovation-oriented HRM practices and HRM systems. It is, therefore, important for executives and HR managers to carefully develop and implement HRM practices and systems that are aligned with the organization's innovation strategy, as these can improve innovation capabilities and innovation performance by creating a culture conducive to innovation, contributing to the development of the Knowledge Management Capabilities of knowledge acquisition, sharing, and application, and developing and expanding the organization's knowledge base.

Care should be taken in the development of the appropriate HRM practices and systems, however, as not all practices and systems are positively related to all forms of innovation and under all conditions. To support professionals in developing and implementing the most suitable HRM practices, innovation scholars could aim to identify which HRM practices and systems are most appropriate for each type of innovation (Shipton et al., 2017b) and under what conditions.

Finally, practical advice for HR professionals would be to begin by evaluating the composition of their existing knowledge base in order to steer innovative teams toward the organization's innovation aspirations, as organizations tend to engage in exploitative or explorative innovation differently and should, indeed, engage in knowledge acquisition and sharing in different ways in order to achieve their innovation objectives. After examining their internal knowledge capabilities and establishing how to manage them effectively, efforts should be made to recruit, select and effectively manage the performance of individuals with the appropriate knowledge and skills necessary for supporting innovative efforts (Hunter, Cushenbery, & Friedrich, 2012).

Finance Department

Being provided with the necessary resources was an “*obvious*”, yet neglected, factor promoting innovation performance (Amabile, 1988, p. 154). Today, those that study innovation recognize that not only the availability of resources but also individuals’ perceptions about the availability of resources affects their innovation performance (Amabile et al., 1996; Hunter et al., 2007; Soriano de Alencar, 2012). For that reason, an organization interested in facilitating innovative activity needs to provide the necessary resources, such as time, finance and space, to employees expected to engage in it.

For resources to be available, the organization needs to secure and invest funds for innovation and acquire and allocate resources where needed. This highlights the importance of strategies and practices followed by the Finance department in acquiring funds and financing innovative initiatives and the significance of strategies and practices implemented by the Purchasing department in acquiring and allocating resources. The following two sections focus on Finance and Purchasing.

External and Internal Finance Availability

Innovation is affected by both external and internal finance availability. At the most macro level, the development of a region’s financial system can improve innovative activity by evaluating innovative projects and financing the most auspicious ones, diversifying the risks involved in innovative projects for investors, revealing the financial rewards of successful innovative projects (King & Levine, 1993b), producing information on investments, monitoring and influencing capital expenditure by firms, mobilizing savings, and easing barter exchange (Levine, 2005). Innovative activity in turn fosters economic growth (King & Levine, 1993a, 1993b; Schumpeter, 1911). Whether the financial system is predominately bank-based or market-based as well as its exact composition seem to be of little importance (Levine, 2005), with the availability of internal and external finance playing the most important role in encouraging innovation (Brown, Fazzari, & Petersen, 2009).

A higher quality of institutions, including a well-developed legal system, as well as government support programs and policies, can boost firm and economic growth by contributing to the development of a region's financial system (Beck & Levine, 2002; Bekaert, Harvey, & Lundblad, 2005; Brown, Martinsson, & Petersen, 2013, 2017; Demirgüç-Kunt & Maksimovic, 2002). Particularly, higher quality institutions can contribute to the development of a financial system in two ways: by improving conditions for investors (Beck, Demirgüç-Kunt, & Maksimovic, 2008b; Bekaert et al., 2005; Kerr & Nanda, 2015) and by improving conditions for banks and innovative firms (Amore, Schneider, & Žaldokas, 2013; Chava, Oettl, Subramanian, & Subramanian, 2013; Cornaggia, Mao, Tian, & Wolfe, 2015). By improving and enforcing laws that protect domestic and international investors (for example, insider trading laws, property rights laws), institutions make investments to innovative firms more attractive. As a result, the supply of external finance from investors to organizations increases. By deregulating banking using measures that increase the local market power of banks (for example, geographical diversification of risks, competition among banks), institutions make banks more likely to offer, and innovative firms more likely to apply for, loans. As a result, the supply of external finance from banks to organizations increases. In both cases, the availability of external finance promotes innovation (Brown, Fazzari, & Petersen, 2009), leading to firm and economic growth.

A higher quality of institutions can also influence innovative activity by affecting the availability of internal finance through government programs and policies, such as tax incentives and subsidies. Such an availability of internal finance is considered critical for R&D investment, as the cost of credit or equity financing of R&D activity tends to be high (Hall & Lerner, 2010). For that reason, tax incentives and other government programs and policies that increase internal finance can facilitate firm innovation and growth in both developed and developing countries (Bronzini & Piselli, 2016; Czarnitzki, Hanel, & Rosa, 2011; Guo, Guo,

& Jiang, 2016; Hall & Lerner, 2010; Kasahara, Shimotsu, & Suzuki, 2014; Minniti & Venturini, 2017a; Szczygielski, Grabowski, Pamukcu, & Tandogan, 2017; Wonglimpiyarat, 2011; Yang, Huang, & Hou, 2012), particularly in small and young firms (Hall & Lerner, 2010). It should be noted, however, that the effectiveness of certain government programs and policies is debatable and further investigation is needed (Chen & Gupta, 2017; Crespi, Giuliadori, Giuliadori, & Rodriguez, 2016; Hall & Lerner, 2010; Howell, 2016; Huergo & Moreno, 2017; Rao, 2016).

Taken together, the two systems – institutions and financial systems – facilitate the availability of internal and external finance that can fuel innovation and, consequently, promote firm and economic growth, which is summarized in Figure 2. Overall, the positive effects of finance availability appear to be greater for small, young, and growing innovative firms (Beck, Demirgüç-Kunt, Laeven, & Levine, 2008a; Beck et al., 2008b; Benfratello, Schiantarelli, & Sembenelli, 2008; Brown et al., 2013; OECD, 2015) and firms in particular industries, such as the high-tech sector, the services sector, and the manufacturing sector (Benfratello et al., 2008; Castellacci & Lie, 2015; Minniti & Venturini, 2017b). While it may be difficult for firms to manage these forces in the external environment, they can organize themselves with other organizations in the region to advocate for advantageous policies or choose regions to operate in that provide these advantages.

Insert Figure 2 here

Firm Finance Differences

Firms differ in their access to, source of, and cost of finance, depending on their age, size, and industry characteristics. For example, small and medium firms in the high-tech industry, an R&D-intensive industry, can face difficulties acquiring external finance and, therefore, resort to personal finances and short-term bank loans, as shown in a study on Italian companies (Giudici & Paleari, 2000), while young and small firms in R&D-intensive industries can face

higher costs of capital than larger competitors and firms in other industries (Hall & Lerner, 2010).

What is more, a study on small and medium Canadian companies showed that more innovative and less innovative firms appear to evaluate and use their available finances in different ways depending on their individual characteristics. For instance, small and medium innovative firms appear to consider access to capital and cost of capital as more important contributors to their past growth and to rely more heavily on venture capital, public equity, and government subsidies as sources of finance than less innovative firms (Baldwin & Johnson, 1995), while large firms tend to finance their investments using internal finance (Hall & Lerner, 2010).

In terms of finance spending and government support, small and medium innovative firms tend to engage in investment expenditures, spend a greater proportion of their capital for product and process innovation by R&D, and believe they spend more on R&D than their competitors compared to less innovative firms (Baldwin & Johnson, 1995). In addition, more innovative firms appraise and utilize government programs, such as R&D tax incentives, to a greater degree than less innovative firms (Baldwin & Johnson, 1995). Supporting some of these early findings on the importance of government support for innovative firms, it has been found that R&D-intensive industries have a higher tendency to apply for R&D tax incentives (Bodas Freitas, Castellacci, Fontana, Malerba, & Vezzulli, 2017).

Finance Integration

In addition to the selection of finance resources and the investment in innovation, the Finance department can influence organizational innovation through its integration with other departments. Unfortunately, the effects of Finance integrations on innovation performance remain largely unexplored (Hempelmann & Engelen, 2015). The single study on the effects of Finance integrations on innovation focuses on the success of new products developed by small,

medium, and large companies across a range of sectors in developed countries (Hempelmann & Engelen, 2015). The findings are encouraging and highlight the need for further research on the effects of Finance integrations. Specifically, the findings suggest that a Finance-R&D integration is particularly critical in the early stages (conceptualization and evaluation) of projects, as the Finance department can perform “*business and profitability assessment[s]*” and make and communicate go/no-go decisions on innovative projects based on their assessments (Hempelmann & Engelen, 2015, p. 640). Therefore, a Finance-R&D integration, characterized by the sharing of assessment conclusions in the early stages of new product development (NPD), can reduce the uncertainty surrounding the financial attractiveness and profitability of projects and ensure that only the most promising projects progress to later stages (Hempelmann & Engelen, 2015).

Furthermore, the study shows that a Finance-Marketing integration is important in the late stages (production and commercialization) of less innovative projects, as the Finance department can perform and communicate a launch financial analysis that helps the Marketing department through a costly and critical product launch (Hempelmann & Engelen, 2015). Thus, a Finance-Marketing integration characterized by the sharing of a launch financial analysis can increase the effectiveness of a product launch and increase the likelihood of the launch’s success (Hempelmann & Engelen, 2015).

Summary

To summarize, firms interested in improving their innovation performance could begin by reevaluating and assigning higher importance to internal and external finance availability, access to finance, and cost of finance in achieving higher performance. Furthermore, with cost of finance in mind, these firms could reevaluate their sources of internal and external finance (for example, investors and government programs) and select the most advantageous source combinations. Lastly, for innovation performance improvements to be observed, these firms

could also reconsider and increase their investment in organizational innovation and look at facilitating connections between the finance department and other areas of the organization working on innovative efforts.

As not all institutional programs and policies are equally effective in increasing internal and external finance availability (Chen & Gupta, 2017; Crespi et al., 2016; Hall & Lerner, 2010; Howell, 2016; Huergo & Moreno, 2017; Rao, 2016), the research community could examine the effectiveness of existing programs and policies that are frequently implemented and make recommendations to organizations on which programs and policies tend to be more beneficial based on their individual characteristics. This line of research will also allow scholars to provide guidance on the improvement of existing programs and the implementation of new programs and policies by institutions.

Finally, the integration of Finance with other functional units can be beneficial to NPD (for example, Finance-R&D and Finance-Marketing integrations in Hempelmann and Engelen (2015)). Arguably, such integrations, encouraged and facilitated by senior management, can also support innovative efforts across the organization. Considering the potential benefits and the lack of adequate investigation, more research needs to be conducted on the effects of Finance integrations on organizational innovation so that the particular effects of each integration under a range of conditions are revealed and so that organizational leaders receive sufficient guidance on how to implement and facilitate these integrations effectively.

Purchasing Department

In cooperation with the Finance department, the Purchasing department is tasked with strategically managing the firm's supply base in such a way that all the resources necessary to the firm's operations, including knowledge, are obtained "*under the most favourable conditions*" (van Weele, 2010, p. 3). Innovation involves the unique reconfiguration and

recombination of existing knowledge (Sawyer, 2012) and, often, valuable knowledge resides outside the firm. In addition, the need to improve new product development (NPD) performance by reducing errors and time-to-market speed has led many firms to embrace open innovation (that is, innovation through the exploitation of knowledge existing within and outside the firm (Chesbrough, 2003)) using their supply base as one source of external knowledge (van Weele, 2010).

The Purchasing department holds a unique position as the gatekeeper of knowledge between the organization itself and its supply base. Because of its unique position, the department has the potential to make great contributions to organizational innovation. For that reason, its role appears to be shifting toward a more strategic, value adding role; a role that boosts innovation by facilitating knowledge sharing and knowledge creation within the organization itself and between the organization and its supply base (Pierangelini, 2017).

Structure and Responsibilities

Recognition of the potential contributions has ignited more research around the effects of the department's structure, responsibilities, and strategic activities on innovation. Research reveals that in organizations successful in NPD, the Purchasing department reports to the organizations' CEOs or COOs (Luzzini & Ronchi, 2011), confirming the evidence for an upward shift of Purchasing report levels (Johnson & Leenders, 2006) and indicating that the department plays an important role in achieving organizational objectives (Monczka, Handfield, Giunipero, & Patterson, 2015). In addition, in these organizations the department's strategy is highly aligned with corporate strategy and other departments' strategies (Luzzini & Ronchi, 2011). The department is also adequately, or at least similarly, integrated with other departments (Luzzini & Ronchi, 2011), echoing the importance of strategic alignment and internal integration in business and supplier performance emphasized in other studies (Ateş et al., 2018; Baier, Hartmann, & Moser, 2008; Cousins, 2005; Ellegaard & Koch, 2012;

González-Benito, 2007; Jansen et al., 2006). In addition, the department's personnel are part of hybrid groups, rather than exclusive groups (for example, groups based on geography) depending on the needs of the organization. Finally, the organization's decision-making centralization is hybrid, with some decisions being made locally by the Purchasing department and others being made at a corporate level (Luzzini & Ronchi, 2011).

As mentioned in the section on Top Management Teams, however, further research on the effects of decision-making centralization is needed as the effects of high centralization are not always negative (Damanpour & Aravind, 2012) and can influence the various types of innovation differently (for example, exploitative and explorative innovation) (Jansen et al., 2006).

Supplier Market Intelligence

One strategic activity supporting Purchasing in fulfilling its responsibilities and strengthening its position as an influencer on strategic decision-making at the corporate level is the development and sharing of Supplier Market Intelligence (SMI) (Handfield, 2006). This involves the development of knowledge (intelligence) about the organization's supply market and supply base characteristics and the use of that intelligence during decision-making (Handfield, 2010; Handfield et al., 2009; McGonagle & Vella, 2012). Such external intelligence can also be communicated throughout the organization, facilitating innovation in four ways. First, it allows the organization to establish appropriate firm-supplier collaborations (Veugelers et al., 2010) that enable knowledge co-creation and sharing that can lead to innovation (Hadaya & Cassivi, 2009). Second, having communication networks with external agents, such as suppliers, enables the organization to evaluate, implement, and exploit new ideas and products more effectively through these networks (Shipton et al., 2017b; Thamhain, 2003). Third, it drives the improvement of innovations within the organization using intelligence on new innovations developed outside the organization (Handfield, 2006),

including innovations developed by the organization's supply market and supply base. And fourth, it arguably enriches the organization's knowledge reserves with knowledge and ideas that can be used to generate new knowledge and ideas in the future.

Once SMI is collected and added to the organization's knowledge base, the organization's capacity to appraise it as useful, assimilate it, and exploit it in value adding activities, also known as absorptive capacity, will determine whether the added intelligence will be exploited in the organization's innovation initiatives (Cohen & Levinthal, 1990). This underscores the importance of absorptive capacity in utilizing any collected SMI (Tsai, 2001; Zhou & Wu, 2010) and highlights that, in addition to developing SMI, organizations will benefit by improving their absorptive capacity (Tsai, Hsieh, & Hultink, 2011) so that SMI contributes to organizational innovation. This becomes an important point of collaboration with the HR department in building the appropriate body of expertise within the organization.

Finally, as discussed under the Human Resources Department section, organizations need to evaluate their knowledge base and engage in the most advantageous innovative activities based on that evaluation. The responsibilities of expanding the organization's knowledge base through the development of SMI, facilitating internal knowledge sharing, and establishing appropriate firm-supplier collaborations are often left to the Purchasing department. This means that the Purchasing department needs to not only be able to fulfill these responsibilities, but also to be able to evaluate the organization's existing knowledge reserves in order to complete these responsibilities effectively.

The requirement to understand the organization's knowledge base composition has not received much attention in the Purchasing literature. Future research could focus on how the department can contribute to the development, maintenance, sharing, and evaluation of the organization's knowledge base through a cooperation with a central unit undertaking these responsibilities, such as the Knowledge Management unit (Dalkir, 2011, p. 13), or through a

cooperation with other functional units that contribute to the organization's knowledge reserves, such as HR, Marketing, and Sales (see the Marketing Department and Sales Department section).

Strategic Sourcing

SMI collected by the Purchasing department, can also indirectly promote innovation performance by informing the organization's Strategic Sourcing (that is, a strategic approach toward lowering supply total costs through strategic purchasing and firm-supplier collaborations (Parniangtong, 2016)). Research shows that SMI is regarded as the basis for Purchasing integrations and firm-supplier collaborations (Handfield et al., 2009; Handfield, 2006), both of which contribute to more rigorous Strategic Sourcing (Handfield et al., 2009; Kocabasoglu & Suresh, 2006). In turn, Strategic Sourcing positively influences financial performance and NPD, as demonstrated in studies examining UK manufacturing and services companies and European and North American manufacturing companies (Handfield et al., 2009; Luzzini et al., 2015).

Note that in addition to cross-functional and firm-supplier collaborations, the status of Purchasing within the organization (Handfield et al., 2009; Kocabasoglu & Suresh, 2006) and the Purchasing manager's knowledge are also believed to positively contribute to Strategic Sourcing, underscoring the important role of Purchasing in this strategic activity. See Figure 3 for a more detailed model of Purchasing's contributions to Strategic Sourcing and organizational innovation.

Insert Figure 3 here

New Product Development

In addition to SMI development, the early involvement of Purchasing in NPD can improve NPD performance through appropriate supplier selection, early supplier involvement, and appropriate firm-supplier collaboration facilitation. In particular, Purchasing involvement

in the early stages of the NPD process can improve supplier sourcing decisions resulting in product quality improvements, lead-time reductions, and cost reductions (Handfield, 2006, p. 47). These improvements can lead to higher NPD performance (van Weele, 2010) and improved overall business performance (growth in sales, return on assets, market share gain, and satisfaction with the firm's competitive position), as shown in studies on US manufacturing companies (Tracey, 2004). The early involvement of Purchasing in NPD also makes an early involvement of suppliers in NPD more likely (Hillebrand & Biemans, 2004; Tracey, 2004) which in turn promotes higher business performance (Tracey, 2004) and improves NPD performance (Laursen & Andersen, 2016). Finally, with firm-supplier collaborations requiring different facilitation by Purchasing depending on the ambiguity surrounding a project in the early stages of NPD (Laursen & Andersen, 2016), the early involvement of Purchasing in NPD could allow the department to offer the appropriate facilitation.

Summary

The Purchasing department, with its unique position as the gatekeeper of knowledge flow between the organization itself and its supply base, can make a contribution to organizational innovation through the responsibilities and strategic activities it undertakes. Based on the preceding literature review, organizations interested in improving supplier-dependent innovation, such as new product and service development, could make sure that the department is strategically aligned to the corporate innovation strategy and other department's strategies, is adequately integrated with other departments, has a high report level, engages in Supplier Market Intelligence (SMI) development, performs knowledge base evaluations, and participates in the early stages of NPD. Through these strategic activities, Purchasing can directly and indirectly influence innovation by developing and providing supply market and supply base intelligence that expands the organization's knowledge base, informs the establishment of firm-supplier collaborations, enables the evaluation, implementation, and

exploitation of new ideas and products through firm-supplier collaborations, drives the improvement of innovations in light of new knowledge, and influences critical activities at the departmental and corporate level, including strategic sourcing, supplier selection, supplier involvement in NPD, and firm-supplier collaboration facilitation.

Organizations interested in enhancing innovation, could also invest in improving their capacity to appraise, assimilate, and exploit new knowledge, so that new knowledge, including new knowledge collected by the Purchasing department, can be utilized to benefit organizational innovation. Top management teams could also strive to assist Purchasing in assuming its new strategic role as a facilitator of knowledge sharing and knowledge creation and undertaking greater responsibility in the development, maintenance, sharing, and evaluation of the organization's knowledge base. To contribute to this effort, the research community could investigate how the Purchasing department can effectively assume its new value-adding roles. Innovation scholars could also examine the benefits of assuming these new roles and responsibilities in order to improve our currently limited understanding in these two unexplored areas.

Marketing Department and Sales Department

The Marketing department has long been recognized as a critical link between customers and the organization itself. Its integration with other departments for market intelligence sharing became of particular interest in the 1970s (Ruekert & Walker, 1987). The department is responsible for understanding "*the target market's needs, wants, and demands*" (Kotler, 2000, p. 6) and influencing "*the level, timing and composition of demand to meet the organisation's objectives*" (Kotler, 2016, p. 10). These responsibilities can be met through market research and forecasting, the development of marketing strategies for the complete life cycle of products and services, the development of marketing programs that detail marketing

budget allocation and expenditure, and the management of marketing resources required for the organization, implementation, and control of marketing programs (Kotler, 2000, 2016).

The Sales department, often with different characteristics and separated from Marketing (Homburg, Jensen, & Krohmer, 2008), is primarily in charge of successfully closing product and service sales (Jobber & Lancaster, 2012). To accomplish this, front-line personnel engage in a process of identifying the customers' needs, presenting and demonstrating the products or services that meet those needs, managing concerns and questions raised by customers, and negotiating the terms of the transaction before closing the sale (Jobber & Lancaster, 2012). Strategic responsibilities of Sales include the management of the ongoing relationships with customers and the development of sales strategies and programs that will allow the department to reach business objectives (Parravicini, 2015).

Marketing and Sales Integrations

The two departments, Marketing and Sales, can support innovative work and directly and indirectly promote business and innovation performance in two ways: by aligning their departmental strategies to the organization's innovation strategy and by sharing their collected market intelligence through integrations with each other and other departments (Griffin & Hauser, 1996; Gupta et al., 1986). With both Marketing and Sales acting as the interface between the organization and its clients, their good cooperation is positively related to the organization's market and financial performance (Homburg & Jensen, 2007; Homburg et al., 2008).

With cross-departmental team integrations expected to have a greater positive influence on new product success than integrations of entire departments (Troy et al., 2008), Marketing collaborations with other functional units can deliver a range of improvements. For example, a Finance-Marketing integration, which is highly valued by top management teams (Verhoef & Leeflang, 2009), can lead to the improvement of new product success when implemented at

the later stages of NPD, as has been observed in companies across a range of sectors (Hempelmann & Engelen, 2015). A Marketing-R&D integration can lead to the improvement of new product success and cost and time efficiency as indicated in studies across a range of sectors and countries (Brettel, Heinemann, Engelen, & Neubauer, 2011; Gupta et al., 1986; Hempelmann & Engelen, 2015; Lu & Yang, 2004; O'Cass & Ngo, 2011; Shim, Kim, & Altmann, 2016; Song & Thieme, 2006). A Marketing-Manufacturing integration during commercialization has been shown, in German companies in knowledge-intensive sectors, to promote new product market performance of incremental innovations (Brettel et al., 2011). Finally, an integration with Manufacturing, R&D, and Design can improve employee satisfaction, new product quality, time-to-market, and product market performance (Olson, Walker, & Ruekert, 1995).

Focusing on Marketing and R&D, the two departments share responsibilities involving the development of new, and the improvement of existing, products and services (Griffin & Hauser, 1996). Their integration, especially under high technological and market uncertainty (Gemser & Leenders, 2011), can have positive effects on NPD and product improvement, as Marketing can share valuable information on customer needs that R&D can use during product development and R&D can share technological and product information that Marketing can use in the development of marketing programs (Shim et al., 2016, p. 310).

The perception that there is a need for a Marketing-R&D integration is expected to increase as the level of focus on innovation in the organization's corporate strategy increases (Gupta et al., 1986). The level of focus on innovation in corporate strategy can also lead to the enhancement of Marketing's capabilities to capture customer needs (Weerawardena, 2003), which when appropriately shared with a well-equipped R&D unit can reinforce R&D innovative activity (Gupta et al., 1986; O'Cass & Ngo, 2011; Weerawardena, 2003). This enhanced activity can in turn lead to higher new product success (Gupta et al., 1986; Lu &

Yang, 2004; O'Cass & Ngo, 2011; Shim et al., 2016; Song & Thieme, 2006) and a sustained competitive advantage (Weerawardena, 2003). These known effects of Marketing-R&D integrations on innovation are summarized in Figure 4.

Insert Figure 4 here

In addition to knowledge sharing through Marketing-R&D integrations, the sharing of market and product knowledge through Sales-Marketing and Sales-R&D integrations can also improve new product success (Ernst, Hoyer, & Rübсаamen, 2010; Homburg, Alavi, Rajab, & Wieseke, 2017; Kuester, Homburg, & Hildesheim, 2017), with both integrations being more effective under specific organizational and environmental conditions (for example, technological uncertainty and power dynamics) (Kuester et al., 2017). What is more, a recent study on the top 10% of Hungarian companies (by sales revenue) found that Sales-Marketing encroachment during NPD (that is, the undertaking of strategic Marketing activities by Sales during NPD) can directly and indirectly, through customer involvement, promote new product financial and market performance (Keszey & Biemans, 2016). Encroachment has been found to be higher when there are high levels of trust and low levels of rivalry between the two departments, when their interactions are formalized, and when Sales offers valuable and actionable information to Marketing (Keszey & Biemans, 2016).

To overcome Marketing integration barriers (Griffin & Hauser, 1996; Gupta, Raj, & Wilemon, 1985), organizations can employ a set of mechanisms that differ in their degree of influence on each collaboration (Gonzalez-Zapatero, Gonzalez-Benito, & Lannelongue, 2016; Leenders & Wierenga, 2002). In a Marketing-R&D integration for instance, relocating Marketing and R&D closer to each other and establishing formal decision-coordination systems (for example, cross-functional phase review boards) are the most effective mechanisms in overcoming collaboration hinderance as shown in a study on large pharmaceutical companies (Leenders & Wierenga, 2002). The existence of equal reward

systems and career opportunities for the two departments, the existence of cross-functional projects, and the presence of Information and Communication Technologies (ICT) that facilitate cross-functional communication appear to be slightly less effective, while the movement of personnel from one department to the other and the existence of informal social systems that facilitate cross-functional communication make the smallest contributions to the quality of the integration (Leenders & Wierenga, 2002). Interestingly, ICTs can also have a positive, direct effect on new product success, whereas cross-functional phase review boards can have a negative, direct effect due to their degree of formalization and complexity (Leenders & Wierenga, 2002).

In a Marketing-Purchasing integration, building cross-functional teams between the two departments and installing ICTs can promote information sharing and understanding in both functional units as evidenced in a recent study on medium and large Spanish companies in patent-intensive sectors (Gonzalez-Zapatero et al., 2016). Ensuring physical proximity can only marginally increase information sharing and understanding while establishing equal reward systems can only promote information sharing and understanding in Marketing (Gonzalez-Zapatero et al., 2016). Finally, establishing formal decision-coordination systems appears to have no effect on information sharing and understanding in neither functional unit (Gonzalez-Zapatero et al., 2016).

Taken together, the findings on integration mechanisms suggest that installing ICTs that facilitate cross-functional communication and establishing cross-functional teams are effective in overcoming Marketing integration barriers. Furthermore, ensuring physical proximity and equal reward systems appear to be promising mechanisms that deserve further exploration. As personnel movement between departments and informal social systems make the smallest contributions to integrations and formal decision-coordination systems produce mixed results and potentially negative consequences, future research examining their effectiveness under

certain conditions could add more insight. More insight could also be provided by the investigation of mechanisms that ease other cross-functional collaborations across the organization.

Summary

Marketing and Sales are the interface between the clients and the organization itself. Through their market research and their interactions with customers, the two departments collect valuable market intelligence. To utilize this collected intelligence for the benefit of new product and service developments, organizations need to ensure that the two departments align their departmental strategies to the organization's innovation strategy as this can increase the perceived need for integrations with other departments. It can also lead to the enhancement of Marketing's capabilities to capture customer needs, which when shared with R&D can reinforce R&D innovative activity, leading to enhanced new product success and sustained competitive advantage.

Organizations could also strive to facilitate cross-functional integrations between Marketing and Sales and other functional units as the sharing of market intelligence through such collaborations can lead to the improvement of the organization's market and financial performance, new product success, cost and time efficiency, employee satisfaction, new product quality, and time-to-market performance.

Finally, organizations could install ICTs that facilitate cross-functional communication and establish cross-functional teams as these mechanisms appear to be effective in overcoming Marketing integration difficulties. To assist management teams in overcoming collaboration hinderance, researchers could further explore the effects of known mechanisms (such as ICTs, cross-functional teams, physical proximity, equal reward systems, personnel movement, informal social systems, and formal decision-coordination systems) across all potential

integrations within an organization in order to advance our understanding and aid practitioners in selecting and implementing the most appropriate ones.

Legal Department

Often directed by a general counsel, the Legal department ensures the organization's legal compliance to all law regimes related to the business (Chayes & Chayes, 1985; DeMott, 2005). As the head of the department, the general counsel typically provides legal advice to senior management and the board of directors, identifies and communicates the anticipated impact of present law and trends in the law, participates in the formulation of corporate and departmental strategies, takes part in the development and implementation of corporate compliance programs, monitors, reports, and corrects compliance violations, defines the organization's bylaws, manages the Legal department's budget and policies, recruits and supervises the legal team, and acts as the agent of the organization in interactions with external parties, such as outside counsel and the government (Chayes & Chayes, 1985; DeMott, 2005)

Legal Integrations

The Legal team, which itself has to be innovative in order to be effective (Moppett, 2013), can support the firm's innovative work through cross-functional collaborations at different stages of the process. As mentioned in the Finance Department section, access to external and internal finance is critical for innovation, and the legal systems in regions in which the organization operates influence the availability and accessibility of funds. To maximize the available funding for innovation, a continuous collaboration between Legal, Finance, and Top Management Teams can assist the Finance department in navigating the legal system, evaluating the available options for finance, and selecting the most appropriate combinations. For example, a general counsel that is a member of the senior team can help reduce the firm's explicit tax liabilities (Abernathy, Kubick, & Masli, 2016), thus increasing the firm's internal finances. In addition, the general counsel, acting as the agent of the organization in interactions

with external parties, can participate in the drafting and enforcement of legal contracts of firm-client collaborations formed by the Sales department (Vashisht, 2006, p. 104) and firm-supplier collaborations formed by the Purchasing department.

Furthermore, having the strongest legal expertise within the organization, the team can help the organization identify and exploit innovation opportunities arising from the introduction of new, or the alteration of existing, regulations and legislations. For instance, the need for compliance to the Clean Air Act, a legislation introduced in the U.K. in 1956 to restrict smoke emissions (The National Archives, 2018), fueled innovation in materials, processes, and product designs (Tidd & Bessant, 2013d). As these changes can encourage but also inhibit future innovation (Mitra, 2017b; Tidd & Bessant, 2013d), the legal team can utilize its knowledge to help the organization make adjustments to existing projects and pursue new projects that are aligned with its innovation aims.

Finally, the legal office can assist R&D, and the organization in general, on issues relating to Intellectual Property (IP) laws. IP laws emerged as a system of laws specifically designed to restrict the unauthorized exploitation of aesthetic or functional intellectual products for a limited period (Christie, 2011; Dreyfuss & Pila, 2017), for instance through copyrights (Christie, 2011; IPO Information Centre, 2018a; Long, 2008), patents (Christie, 2011; Dreyfuss & Pila, 2017; Epstein, 2017, p. 36), trademarks (Dreyfuss & Pila, 2017; IPO Information Centre, 2018c; USPTO, 2018), and designs (Christie, 2011; IPO Information Centre, 2018b).

By protecting novel and original work from being used by others without authorization by the creators, IP laws can promote competition between creators and, through that, increase productivity and diversity of intellectual products, ensure transparency in the marketplace that enables consumers to make informed decisions, and secure the creators' ability to benefit from their creations (Christie, 2011; Dreyfuss & Pila, 2017; Kultti, Takalo, & Toikka, 2007; Leiponen, 2013; Long, 2008; Mandel, 2011).

The Legal department could especially help the R&D department navigate IP laws and negotiate licensing of others' creations when selecting which protected innovations the department would like to build on or work around. The legal team could also participate in the development and implementation of the most beneficial protection strategies for intellectual products created by R&D and the organization more broadly. Usually, an organization can choose to register those creations and protect them with IP laws or to keep them secret from the public (Arundel, 2001; Dass, Nanda, & Xiao, 2015; Kultti et al., 2007; Tidd & Bessant, 2013b), with the latter strategy entailing the danger of those creations being independently developed elsewhere or being copied (Dass et al., 2015, p. 1). Whether one strategy is preferred over the other will depend on the extent to which IP laws and trade secrecy laws are enforced as well as the costs and benefits involved in each strategy for each innovation independently (Arundel, 2001; Dass et al., 2015; Leiponen, 2013).

Some organizations implement strategic patenting that emphasizes future licensing negotiations and lawsuit avoidance, with some industries relying more heavily on patenting for a return on innovation investment than others (Leiponen, 2013). Patent data can indicate an organization's capacity to innovate, and it has been found that companies with above average patent portfolio quality and higher linkage of their patents to scientific research tend to be highly valued by investors and generate higher stock-market returns (Tidd & Bessant, 2013b).

To ensure that IP laws effectively support innovation, the imposed boundaries need to be balanced with the benefits delivered to innovators. On the one hand, it is argued that the delays in progress caused by patents, the lack of reward for small innovations, the excessively high license fees posed by patent owners (Sawyer, 2008), and the restriction of large collaborations (Mandel, 2011) can sometimes prevent the sharing of ideas and, therefore, can hold innovative work back. For example, it was found that Celera's move to protect the human genes sequenced by Celera for the period 2001-2003 reduced subsequent scientific research and innovation by

20 to 30 percent (Williams, 2013). In addition, the rules restraining large-scale collaborations can hinder modern scientific and artistic endeavors which involves the collaboration of vast networks of individuals with diverse knowledge (Mandel, 2011). On the other hand, it is argued that, since innovation flourishes under moderate regulation, some constraints created by IP law can spur innovation, leading to an increase in the number and variety of problem solutions and artistic expressions for the benefit of the general public (Fishman, 2014).

Taken together, these two opposing arguments suggest that an equilibrium needs to be reached so that organizational innovation is inspired by a certain degree of limitations while at the same time it is not hindered by them. To help promote organizational innovation, the research community could identify such an equilibrium and guide legislators through the implementation of new, and the adjustment of existing, IP laws.

Summary

Being the Legal experts of the organization, the Legal department can support innovative work by contributing to the decision-making of top management teams and other functional units. To utilize this expertise in supporting innovation, organizations could include a representative of the Legal team in top management teams and strive to facilitate Legal integrations with other departments, as these collaborations can improve the selection of financing options for innovation, can assist in drafting and enforcing legal firm-supplier and firm-client contracts, can aid the organization in capitalizing on innovation opportunities arising from changes in the law, can help navigate IP laws and negotiate licensing contracts for external creations, and can contribute in the development and implementation of the most appropriate protection strategies for intellectual products developed by the organization.

The literature generally lacks a discussion around the benefits of Legal integrations with other departments. As a result, the importance of integrating Legal with other functions of the organization is not pronounced enough, despite the potential benefits. To help highlight the

importance of Legal integrations and assist organizations in implementing beneficial integrations based on their individual characteristics (for example, size, age, sector, innovation aims), organizational innovation scholars could engage in a more rigorous investigation of the benefits of Legal integrations, the obstacles of implementing such collaboration, and the mechanisms that can help overcome those obstacles. Lastly, the research community could also participate in the identification and implementation of balanced IP laws that will allow organizational innovation to flourish by imposing restrictions that spur but not impede innovation.

Departmental Management Teams

While we have already addressed how leaders at the top of the organization can influence innovation, department-level leaders requesting innovative work from their employees can take additional measures to support engagement with such work. Arguably, each department is a microcosm of the organization. Thus, innovative work occurring at the departmental level is affected by departmental vision (Anderson et al., 2014; Pearce & Ensley, 2004), leadership, practices and procedures, structure, and strategy. Innovation at this level can also be influenced by how line managers choose to develop their supervisees' expertise and creative-thinking skills through training, increase their supervisees' intrinsic motivation through challenge, instill a sense of freedom, ensure resource availability, make appropriate team selections in terms of supportiveness and diversity, and demonstrate supervisory and organizational support and encouragement (Amabile, 1998). Note that perceptions about all these elements are part of the overall climate for creativity (see Top Management Teams section).

Moreover, team leaders who are experts in the field of the innovative work can support their teams by defining and communicating a mission that will direct the innovative effort, planning and structuring the project, and assisting in defining the problem to be solved. Once the work is underway, they can support the team by evaluating any work completed against the

mission, forecasting the consequences of their teams' actions, wisely assessing their teams' options and acting accordingly, and selling the innovative project to management and key stakeholders (Mumford & Barrett, 2011; Mumford, Durban, Gujar, Buck, & Todd, 2018a; Mumford et al., 2018b).

Team leaders can also contribute to innovative efforts by supporting innovative teams through the cognitive and social processes they must engage in. With more work organized around teams rather than individuals in today's organizations (Edmondson & Roloff, 2008; Kozlowski & Bell, 2008; Reiter-Palmon, Wigert, & Vreede, 2012; Royston & Reiter-Palmon, 2017), leaders will need to ensure that teams working on innovative projects have a rich repertoire of strategies to help them overcome additional obstacles inherent in teamwork. Focusing on the cognitive process of idea generation, teamwork involves both individual ideation and group idea exchange (Paulus, 2008). Though theoretically interactive groups (that is, groups that generate ideas together) are expected to be as productive, if not more, in ideation as nominal groups (that is, groups of people generating ideas independently and subsequently combining them) (Brown & Paulus, 2002; Oxley, Dzindolet, & Paulus, 1996; Valacich, Dennis, & Connolly, 1994), the notion has not received sufficient empirical support (Paulus, 2000; Paulus, Dzindolet, & Kohn, 2012; Paulus & Nijstad, 2003).

It is argued that for team ideation to become more effective, team leaders can introduce additional strategies, such as exchanging ideas in writing (Brown & Paulus, 2002), note taking and reading others' ideas before contributing (Paulus & Yang, 2000), alternating between intervals of individual and group ideation that will allow for reflection on exchanged ideas and generation of new ones (Baruah & Paulus, 2008; Brown & Paulus, 2002; Paulus & Yang, 2000), training on ideation (Baruah & Paulus, 2008), adding further instructions for ideation (for example, generate creative ideas), adding ideation facilitators to enforce instructions (Reiter-Palmon & Royston, 2017), reducing distractions and irrelevant discussions, introducing

ideas during brainstorming to facilitate further ideation, breaking ideation into subtasks, and taking breaks (Paulus et al., 2012).

To combat the effects of social and group influences involved in social processes, team leaders can introduce individual accountability for individual contributions to minimize motivation loss, encourage asynchronous idea exchange (for example, in writing or using computers) to reduce production blocking caused by the fact that only one member can contribute at any given time in concurrent exchanges, build team cohesion and goal commitment to decrease performance comparison between group members, and endorse the sharing and accepting of unique information and ideas to lessen the tendency to focus on common information and ideas (Paulus, 2008; Paulus et al., 2012). Team leaders can also boost teams' innovation performance by shaping the environmental conditions in such a way that team members feel psychologically safe to take interpersonal risks, trust that they will not be harmed and that the team will accomplish its objectives, engage in open communication, collaboration, and participation, have enough time to dedicate to coordination and discussion of information and ideas, have the necessary resources and external collaboration, and feel that their leaders support innovation (Reiter-Palmon et al., 2012; Royston & Reiter-Palmon, 2017).

Summary

In summary, departmental leadership interested in facilitating innovation could, in addition to focusing on visions, leadership, practices and procedures, structures, and strategies that are conducive to innovation (see Top Management Teams section), apply their expertise in the field at every stage of the innovative project to assist and guide innovative teams. They could also implement additional strategies that will support innovative teams in engaging with the cognitive and social processes entailed in innovative teamwork.

Conclusion

In this chapter, we looked at how Top Management Teams, Departmental Management Teams, and the functional units of the organization – Human Resources, Finance, Purchasing, Marketing, Sales, and Legal – can influence organizational innovation. In addition to highlighting how each individual function can support and facilitate innovation, our review reveals the important role of strategic alignment and cross-functional collaboration in meeting innovation objectives as shown in Figure 5. The significance of organizational-level strategic alignment and cross-functional collaboration remains largely unexplored, as the majority of scholars focus on the strategic alignment and cross-functional collaboration between a limited number of organizational functions and not the organization as a whole. Looking at each individual function, we found that these organizational characteristics often foster innovation in a number of ways. Based on these findings, we could argue that implementing strategic alignments and cross-functional collaborations across the organization will greatly benefit organizational innovation, with each strategic alignment and cross-functional collaboration making its own contributions to innovation performance.

Insert Figure 5 here

To identify the role of strategic alignment and cross-functional collaboration in organizational innovation and assist management teams in implementing them, innovation scholars could begin investigating their effects on organizational innovation and the barriers preventing such alignments and collaborations to materialize. These two lines of research can reveal the most valuable strategic alignments and cross-functional collaborations and guide management teams through their implementation.

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Figures

Figure 1: The relationship between HRM Practices and Innovation Performance.

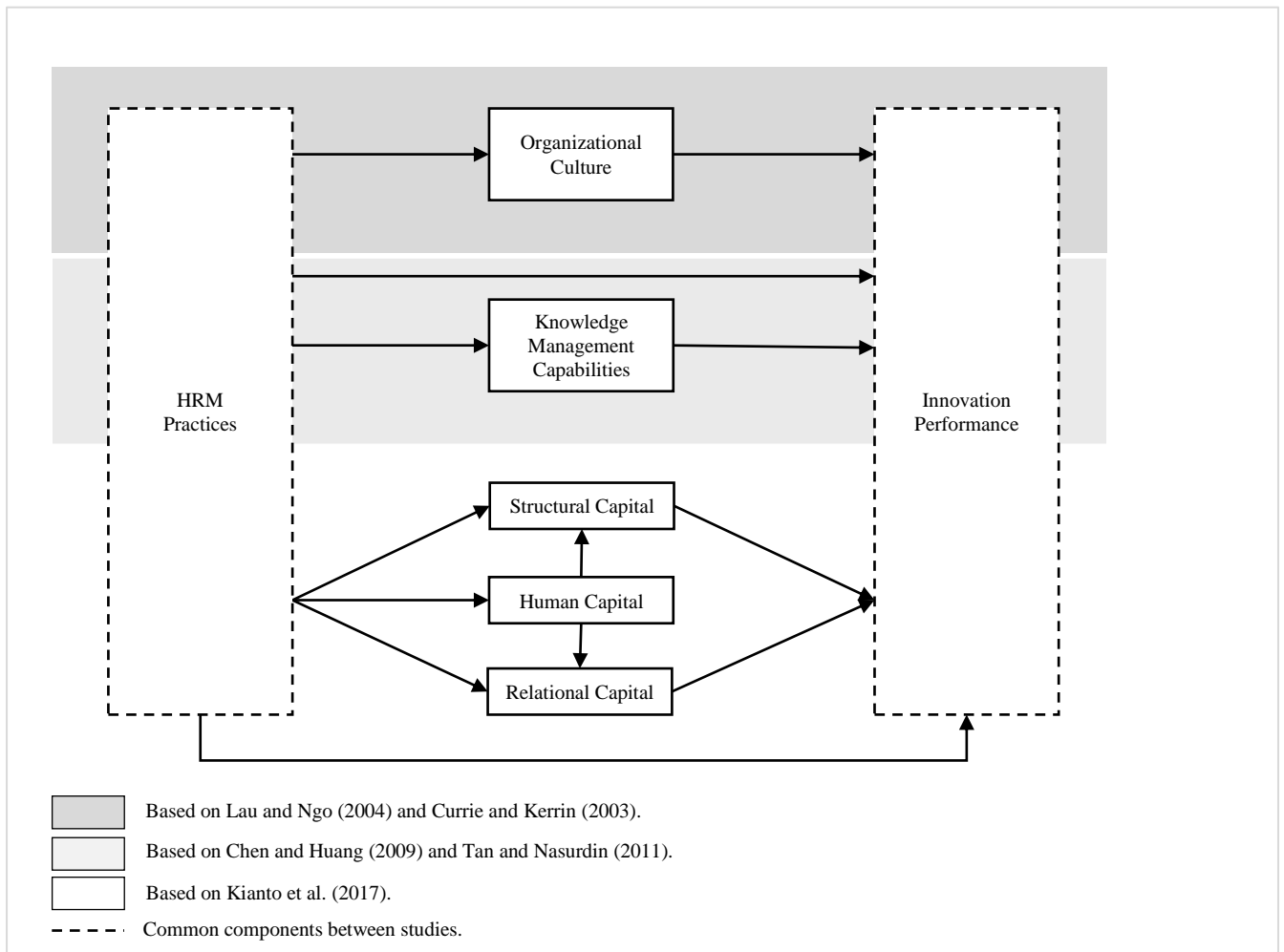


Figure 2: The role of Institutions and Financial Systems in Innovation and Firm and Economic Growth.

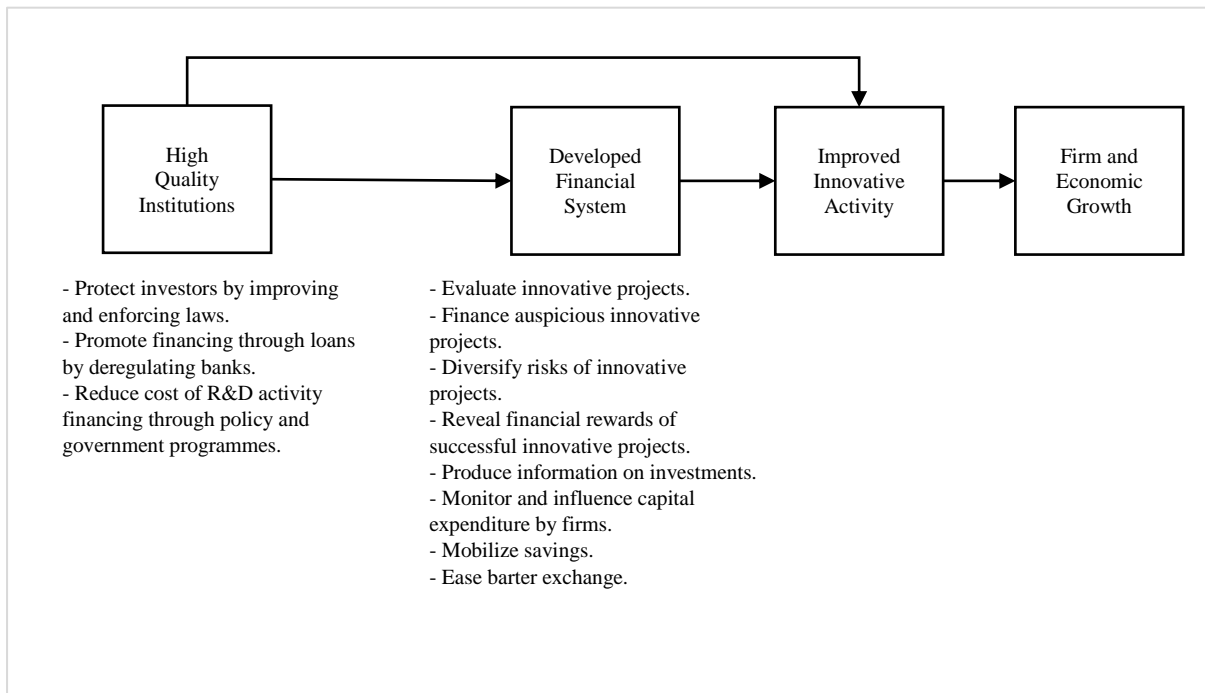


Figure 3: The role of Strategic Sourcing in Financial and Innovation Performance.

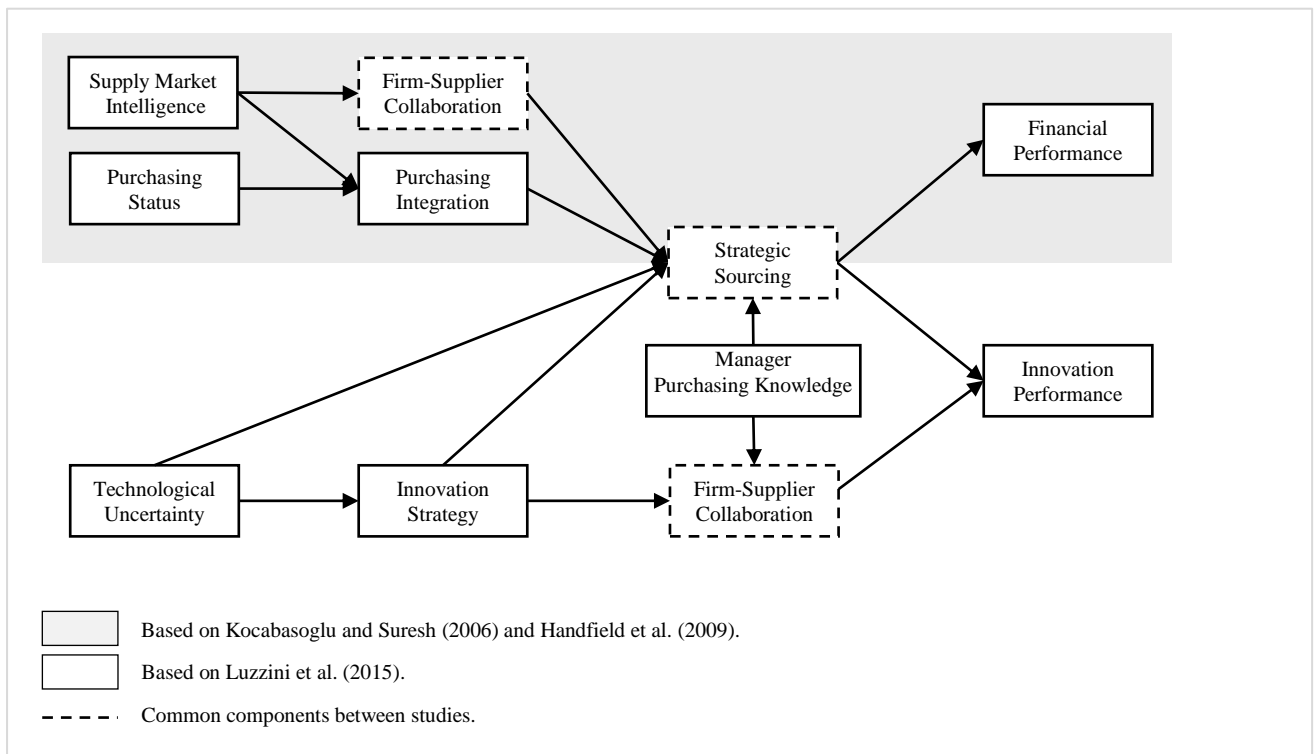


Figure 4: The relationship between Marketing-R&D integrations and Innovation.

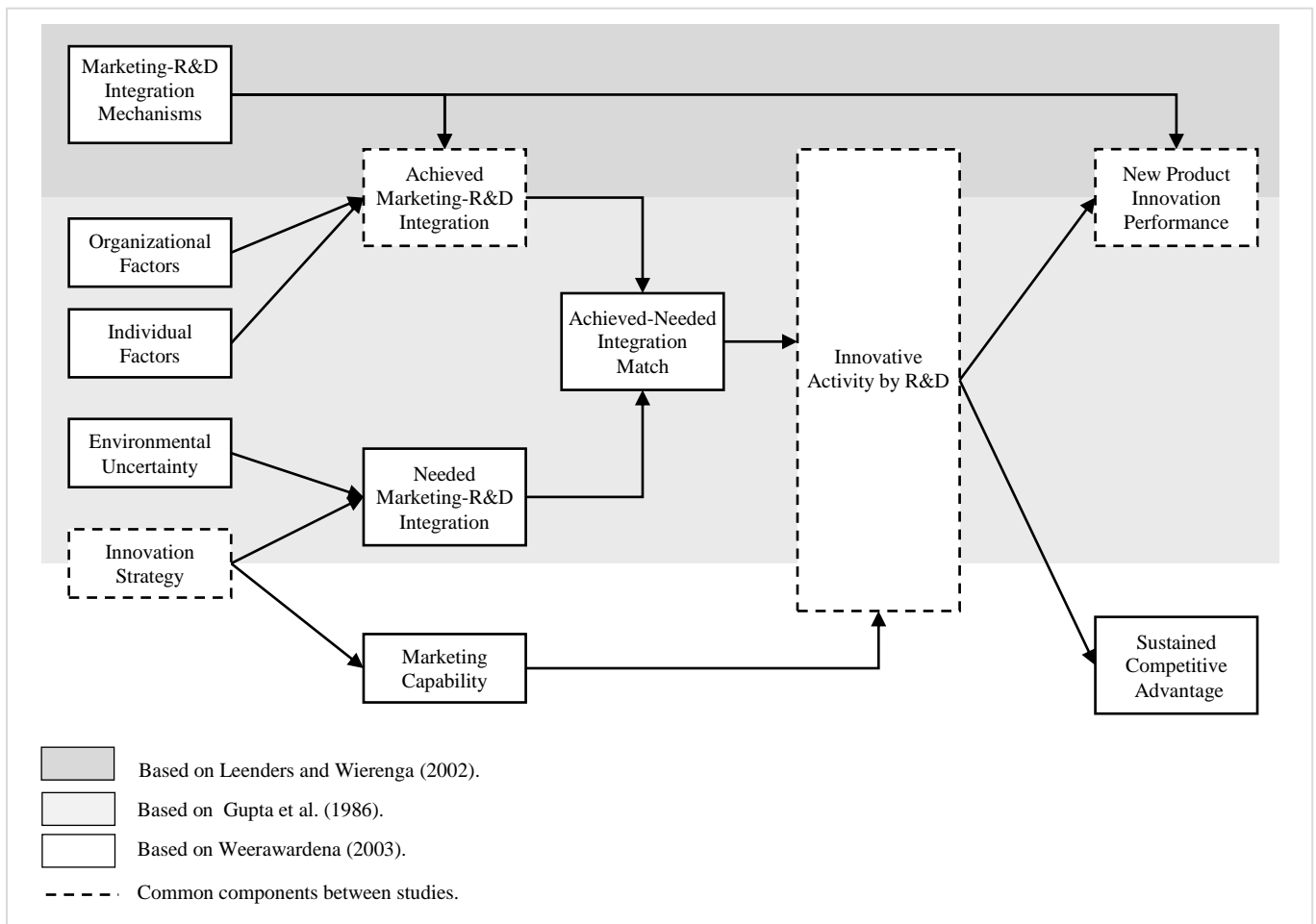


Figure 5: Function influence on legitimacy and support for innovation.

Organizational Functions Top Management Teams	Functional Characteristics Influencing Innovation Vision Leadership Practices & Procedures Structure Strategy	Elements Important to Innovation Influenced by Functional Characteristics Direction Focus Culture Climate
Human Resources (HR)	Departmental Strategic Alignment HRM Practices	Culture Knowledge Management Capabilities Knowledge Base
Finance Purchasing Marketing Sales Legal Departmental Management Teams	Departmental Strategic Alignment Cross-Functional Collaboration Collaboration with External Agents Vision Mission Leadership Support Strategies	Knowledge Base Knowledge Management Capabilities (sharing) External Networks for Evaluation, Implementation, Exploitation Direction Focus Climate

Author Biosketches

Kyriaki Hadjikosta is a Ph.D. student at Warwick Business School, The University of Warwick, studying the mechanisms by which play can promote creativity in the organizational context. Her Ph.D. is funded by the Economic and Social Research Council Doctoral Training Centre (ESRC DTC). She has an undergraduate degree in Computer Science from the University of Cyprus and a postgraduate degree in Programme and Project Management from the Warwick Manufacturing Group, The University of Warwick.

Dr. Tamara Friedrich is an Associate Professor of Entrepreneurship and Innovation at Warwick Business School. She received her MS (2007) and PhD (2010) in Industrial and Organizational Psychology from the University of Oklahoma. She has worked on a number of research grants with several funding agencies in the USA including the NIH, Army Research Institute and the Department of Defence. Her primary research interests fall into the broad categories of innovation and leadership, however much of her recent research falls into the intersection of these two areas. For instance, she has studied how organizational leaders may initiate, support, and sustain innovative efforts through hiring, performance management, and creating a climate for creativity as well as how collective leadership may be used to support innovation. Her work has appeared in several books and journals, including *The Leadership Quarterly*, *Creativity Research Journal*, and *Human Resource Management Review*.