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Literature on organizational innovation: past and future

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Abstract

Purpose – The purpose of this paper is to examine what are both the main theoretical basis and the recent perspectives within the organizational innovation literature.

Design/methodology/approach – The authors have conducted a bibliometric analysis reviewing the research on organizational innovation from 460 articles published in the period from 2007 to 2016 and indexed in the Web of Science through co-citation and bibliographical coupling analyses.

Findings – The clusters analysis results show that the main theoretical foundations are learning and evolution; implementation of innovation; and leadership, creativity and learning. Regarding recent perspectives, the clusters indicate studies on core concepts, knowledge and capability, learning for resource development and human resources for innovation.

Originality/value – This study organizes the knowledge basis for future research on organizational innovation, and, unlike most literature reviews, this study provides the current trends on the topic and presents a comprehensive research agenda.

Keywords Literature review, Learning, Capabilities, Leadership, Organizational innovation

Paper type Research paper

1. Introduction

The importance of innovation to competitiveness is acknowledged. On the other hand, understanding the meaning of innovation is a little more controversial, mainly in the academic sphere (Birkinshaw *et al.*, 2008), in which research is largely focused on technological innovation to the detriment of other types of innovation. This is because innovation is not one simple isolated act of companies; on the contrary, it is completely dependent on several mixed new or changed actions so that the company really increases competitiveness.

Perhaps, Joseph Schumpeter (1934) was the first author to distinguish the existence of different types of innovation: innovation in products, methods of production, markets,

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sources of supply and ways of organizing any industry. Therefore, to obtain a broad understanding of the meaning of innovation, it becomes necessary to understand it beyond changing technology. In this paper, the focus is on organizational innovation, and this choice can be justified considering that this type of innovation has allowed firms to achieve new performance thresholds (Hamel, 2006) and has been under-researched (Sappasert and Clausen, 2012).

Frequently, organizational innovation is also called administrative or management innovation (Damanpour, 2014) and can be conceptualized simply as “how managers do what they do” (Hamel, 2006, p. 4). Calling it administrative innovation, as opposed to technical innovation, Evan (1966) explained that this innovation includes new ideas for the recruitment of people, the allocation of resources and the structuring of tasks, authority and rewards. Furthermore, organizational innovation can include changes in organizational structures, modification of people’s behaviors and beliefs (Knight, 1967) and new rules, roles and procedures (Damanpour and Evan, 1984).

Using mainly ideas from Birkinshaw and colleagues (Birkinshaw *et al.*, 2008; Birkinshaw and Mol, 2006), Hollen *et al.* (2013, p. 41) conceptualized organizational innovation as:

[...] firm-specific, new-to-the-firm management activities associated with setting objectives, motivating employees, coordinating activities and making decisions, which arise due to new interorganizational relations and are intended to further organizational goals.

The definition in the *Oslo Manual* [*Organisation for Economic Co-operation and Development (OECD), 2005*] is at the same time broad and simple: organizational innovation is the implementation of a new organizational method in a firm’s business practices, workplace organization or external relations. This definition comprises three main branches:

- (1) business practices (new methods for organizing routines and procedures);
- (2) workplace organization (new ways of distributing responsibilities involving employees); and
- (3) external relations (new ways of organizing relations with other firms or public institutions).

Other scholars also developed typologies for understanding organizational innovation; however, many of them are overlapped. Armbruster *et al.* (2008) mentioned the existence of two types of organizational innovation: structural innovation and procedural innovation. These two types are identical to previous workplace organization and business practices mentioned in the *Oslo Manual*, and Armbruster *et al.* (2008) presented the third type (external relations) as a different dimension where the company focus can be intra-organizational or inter-organizational. Crossan and Apaydin (2010) developed a framework with determinants (leadership, managerial levers and business processes) and dimensions of innovation (innovation as both a process and an outcome). This is also related to the wider aspect of business practices and workplace organization found in the *Oslo Manual*.

It is worth mentioning that recognizing subtypes of organizational innovation helps with achieving a better understanding of this concept, thus avoiding misunderstandings in the innovation research area (Armbruster *et al.*, 2008). Nevertheless, to advance the comprehension of organizational innovation, it is still necessary to deepen the understanding of the theoretical and conceptual bases for the conceptualization of this issue, which is missing in the literature.

The maturity of the topic can be equally identified via published theoretical reviews (Damanpour and Aravind, 2012; Jimenez-Jimenez and Sanz-Valle, 2008), which provide grounds for the study of organizational innovation. However, reviews are qualitative in

general and provide a partial perspective, with a focus on specific aspects, such as the contribution of the network behavior to the innovation capacity (Pittaway *et al.*, 2004), for example.

Considering the increasing interest in the organizational innovation field and the fragility as mentioned above, two questions have been focused on in this paper:

Q1. What are the main theoretical bases of the organizational innovation literature?

Q2. What are the recent perspectives within the organizational innovation literature?

The answers to these questions are important for developing effective measures for addressing the updated status of research on organizational innovation. Considering this, the purpose of this paper is to analyze the research on organizational innovation from a bibliometric approach by using quantitative analysis, which, in its broader and more objective way, complements the qualitative studies.

Bibliometrics is a research method that originated from the field of information science based on a knowledge-based system and on the theory of diffusion, and it has been largely applied to scientific progress, with a change in paradigms by means of the measurement of productivity in publications and the analysis of the citation of a given topic, subject, institution or country (Narin, Olivastro and Stevens, 1994; Ramos-Rodríguez and Ruíz-Navarro, 2004; Vogel and Güttel, 2012). When we analyze the literature generated via a bibliometric approach, given the comprehensive and informed understanding of the previous research, we may assess what was done and what needs investigation.

Supported by what has been explained and by a growing number of publications on the topic, the importance of this study increases. Its aim was to analyze scientific production in organizational innovation through the structuring of a bibliographic portfolio, as scientific knowledge is based on the classification and systematization of information, and it is necessary for the solidification of knowledge in a given area of study (Lage Junior and Godinho Filho, 2010). Thus, when we dive deeper in understanding the knowledge consolidated in organizational innovation so far, we expect to provide a basis for a clearer starting point for future research on the topic, which is the main contribution of this paper.

2. Conceptual background

The environment in which companies are embedded is increasingly dynamic (Hollen *et al.*, 2013) and demands that firms pass through organizational changes, mainly using innovation (Knight, 1967). As it became important for companies, innovation also became relevant as a field of research; thus, it has developed strongly in the past few decades (Damanpour and Aravind, 2012).

Such development has experienced difficulties once the results of studies seem to be disparate or unstable, which has hampered the creation of a consistent theory for the area (Downs and Mohr, 1976). The solution to this problem, according to some authors (Damanpour, 1991; Downs and Mohr, 1979; Downs and Mohr, 1976; Wolfe, 1994), is to consider different types, attributes and dimensions of innovation when studying it.

Our interest here is organizational innovation whose roots can be traced back to Daft (1978). He pointed out an important difference regarding the origin of innovation within the firm considering the hierarchical position (managers or employees) of the innovation's author. This distinction subsequently led to a distinction between technological and administrative innovation (Damanpour, 1991; Damanpour and Evan, 1984; Kimberly and Evanisko, 1981).

Although research was limited to technological innovation for a long time (Damanpour and Aravind, 2012), it has already been demonstrated that organizational innovation is as

important as technological innovation is, as it has presented positive effects on organizational performance (Saprasert and Clausen, 2012).

To designate this kind of innovation, some expressions have been used, such as administrative innovation, organizational innovation, management innovation and managerial innovation (Birkinshaw *et al.*, 2008; Damanpour and Aravind, 2012). Birkinshaw *et al.* (2008) presented that “organizational innovation” is a term many times used to represent any type of innovation in the organizational context, and “administrative innovation” is an expression that represents restricted uses, pointing only to changes in the organizational structure and in human resource policies. This is why Damanpour (2014, p. 1269) used the expression “management innovation,” showing that “it has gaining currency in recent publications.”

From the conceptual point of view, the *Oslo Manual* [Organisation for Economic Co-operation and Development (OECD), 2005, p. 51] defined organizational innovation as “the implementation of a new organisational method in the firm’s business practices, workplace organisation or external relations.” Being more specific, Damanpour *et al.* (2009, p. 655) defined organizational innovation as:

Changes in the organization’s structure and processes, administrative systems, knowledge used in performing the work of management, and managerial skills that enable an organization to function and succeed by using its resources effectively.

Such definitions allow us to identify some activities that can be classified as organizational innovation, and dozens of examples can be found in the literature, including brand management, divisional structure, leadership development, decentralization, the balanced scorecard, intellectual capital measurement and Six Sigma (Birkinshaw and Mol, 2006; Hamel, 2006). The examples, definitions and concepts presented contributed to defining the criteria for the research, as defined below.

3. Method

Bibliometric analysis relies on the counting of publications for the development of science; for this, technical parameters of performance are used as a proxy for the measurement of scientific production (Narin *et al.*, 1994). A step forward is knowledge domain visualization (KDViz), which, according to Chen (2004), allows one to detect and monitor the evolution of a certain scientific field through the creation of maps that ultimately reflect the social construction of a field via its members (Nerur *et al.*, 2008). This type of approach has been used to map research on the strategic management field (Ramos-Rodríguez and Ruiz-Navarro, 2004), the dynamic capabilities view (Vogel and Güttel, 2012) and the ambidexterity concept (Nosella *et al.*, 2012).

The sample comprised 460 scientific articles selected from the Web of Science database of the Institute for Scientific Information (Social Sciences Citation Index – Management). According to Podsakoff *et al.* (2005), articles in this database are more likely to have the highest impact in the field. The selection of the articles followed two criteria:

- (1) *Year of publication between 2007 and 2016*: This time span of 10 years was enough to cover the recent literature and to cope with the research question of mapping emerging perspectives.
- (2) *Present in the “topic” one of the following terms of “organisational innovation,” “organizational innovation,” “administrative innovation,” “management innovation” or “managerial innovation”*: The choice of the terms to be searched was based on indications by Birkinshaw *et al.* (2008) and also by Damanpour and Aravind (2012), who stated that such expressions are used interchangeably.

To answer our questions, we performed two different bibliometric analyses (one for each research question): co-author and bibliographical coupling analyses. Co-citation analysis connects references based on how they are cited together: as the number of citations grows, the influence of the references also grows (Vogel and Güttel, 2012). Therefore, co-citation analysis reflects the past, that is, what was cited. Bibliographical coupling connects papers based on the number of references shared (Vogel and Güttel, 2012). This measure is static over time, is immediately available and does not require accumulated citations. In this sense, bibliographical coupling is the best technique for mapping research fronts (Boyack and Klavans, 2010).

Finally, we then performed a cluster analysis to group related articles, which represented subfields of organizational innovation, making it possible to objectively identify the theoretical bases from the cited references (co-citation analysis) and the emerging perspectives from the papers retrieved (bibliographical coupling analysis). Although factor analysis was an option, cluster analysis is superior in situations of high structural complexity (Gmür, 2003).

4. Results

4.1 Co-citation analysis: the theoretical foundations

In this section, we present the clusters identified by means of co-citation analysis (Figure 1), that is, we explore the internal structure and uncover the main theoretical foundations.

4.1.1 Cluster 1: learning and evolution. The name “Learning and Evolution” encompasses the two predominant perspectives in the publications of the first cluster. They highlight knowledge as the most important resource and therefore learning as the most important process, in addition to recognizing the importance of market dynamics, cognition boundaries, routines and capabilities (Cohen and Levinthal, 1990; Kogut and Zander, 1992; Nelson and Winter, 1982; Schumpeter, 1934). Within this shared theme, most of the publications explore some kind of ambidexterity, that is, how a firm can understand and manage the tension between contrasting and conflicting goals (March, 1991). A firm is ambidextrous or has ambidexterity capability if it achieves high levels of performance in both goals simultaneously.

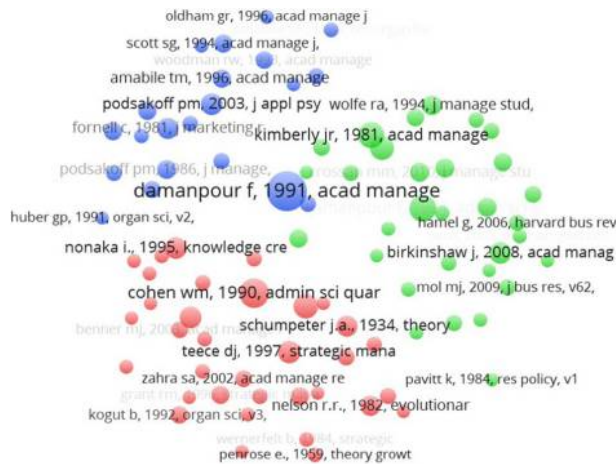


Figure 1.
Co-citation cluster
network

Notes: Cluster 1 (red); Cluster 2 (green) and Cluster 3 (blue)

These publications discuss the balance of knowledge exploration and knowledge exploitation (March, 1991), tacit knowledge and explicit knowledge (Nonaka and Takeuchi, 1995), the innovation of a product's components and architecture (Henderson and Clark, 1990), individual knowledge and collective knowledge (Grant, 1996; Kogut and Zander, 1992), potential absorptive capacity and realized absorptive capacity (Zahra and George, 2002) and search depth and search scope (Katila and Ahuja, 2002). However, the most common stream is that ambidexterity research is the traditional dilemma between exploratory/incremental innovation and exploitative/radical innovation (Benner and Tushman, 2003; Gupta *et al.*, 2006; He and Wong, 2004; Jansen *et al.*, 2006; Subramaniam and Youndt, 2005; Tushman and O'Reilly, 1996).

Still connected to this evolutionary view, some publications do not directly address learning processes but how a firm can reconfigure its resources to meet environmental changes and to achieve a competitive advantage (Eisenhardt and Martin, 2000; Teece, 2007; Teece *et al.*, 1997). This concept is known as dynamic capabilities, and unlike ambidexterity, they explicitly deal with managerial processes and routines. In this sense, they are close to organizational innovation.

4.1.2 Cluster 2: implementation of innovation. The second cluster features firm-level valuation, with most of the references focusing on the implementation of innovation in organizations. Many studies analyzed technological innovation and organizational innovation (Damanpour and Evan, 1984; Damanpour and Gopalakrishnan, 2001; Damanpour *et al.*, 1989; Damanpour *et al.*, 2009; Kimberly and Evanisko, 1981) with different purposes, such as establishing a relation between them (Kimberly and Evanisko, 1981) and understanding which kind of innovation leads to better performance (Damanpour and Evan, 1984). The importance of technological innovation in this cluster is also seen both in the specific studies on this kind of innovation (Chesbrough, 2003; Dewar and Dutton, 1986; Edquist *et al.*, 2001; Pavitt, 1984; Utterback and Abernathy, 1975) and in the backgrounds of the authors who form the cluster, many of whom are or were active in the areas of technological innovation and entrepreneurship.

Some aspects of the implementation of innovation appear in many of the studies in this cluster, such as leadership or manager importance for innovation (Crossan and Apaydin, 2010; Damanpour and Schneider, 2006; Hamel, 2006; Vaccaro *et al.*, 2012) and the role of human resources in innovative changes (Daft, 1978). Another similarity between several studies in this cluster is the focus on the service sector (Damanpour, 1987; Damanpour and Evan, 1984; Damanpour and Gopalakrishnan, 2001; Damanpour *et al.*, 2009; Gallouj and Weinstein, 1997; Kimberly and Evanisko, 1981).

In addition, there is a clear intention to more deeply understand and better define organizational innovation in this cluster. This issue arises when attempting a general understanding of the way in which this innovation develops in organizations (Birkinshaw *et al.*, 2008; Mol and Birkinshaw, 2009) and proposing measures for further studies [Armbruster *et al.*, 2008; Organisation for Economic Co-operation and Development (OECD), 2005].

4.1.3 Cluster 3: leadership, creativity and learning. The third co-citation cluster presents two major subdivisions: the first includes references focused on leadership, creativity and learning and their impact on organizational innovation, and the second refers to the statistical aspects of research on management and innovation.

First, a connection exists among themes such as leadership, creativity and learning. Some of the authors of this cluster (Scott and Bruce, 1994; Van De Ven, 1986) indicated the importance of the leader's role in fostering innovation, especially in creating a cultural environment favorable for innovation. This favorable climate that the leaders have created encourages the individual creative efforts (Jung, Chow, and Wu, 2003), leading to the

development of organizational innovation. Finally, the appropriate environment that the leaders have created has the power to facilitate the diffusion of knowledge obtained through learning (Jung *et al.*, 2003), which is also considered an important factor for the development of innovation (Calantone *et al.*, 2002).

Second, papers with statistical approaches are concerned mainly with multivariate data analysis, including multiple regression and structural equation modeling. The last one may indicate the understanding of innovation as a complex phenomenon (Armbruster *et al.*, 2008), which to be studied requires appropriate statistical tools for modeling and testing (Schumacker and Lomax, 2010).

4.2 Bibliographic coupling analysis: the current perspectives

To map the emerging fields of research on organization innovation, we present the cluster results of bibliographic coupling analysis (Figure 2). Each cluster is described, and then, in the end, we outline a research agenda for future studies based on the fronts mapped.

4.2.1 Cluster 1: core concept. The publications in this cluster are mainly concerned with delimiting the boundaries of organizational innovation as a concept, either empirically (Walker *et al.*, 2015) or conceptually (Birkinshaw *et al.*, 2008). In this sense, the first focus of the publications is determining what organizational innovation is. Proof of that is that this cluster has four publications of Damanpour (Damanpour, 2010, 2014; Damanpour and Aravind, 2012; Damanpour *et al.*, 2009), one the most important scholars regarding this theme. Other studies explored the characteristics of organizational innovation in terms of the mechanisms of diffusion, drawing on the variation and selection process (Ansari *et al.*, 2010; Ansari *et al.*, 2014) or on inter-firm relationships (Meuer, 2014).

The second focus is the organizational innovation impact on firm performance (Gallego *et al.*, 2013; Hervas-Oliver *et al.*, 2016; Nieves, 2016; Sapprasert and Clausen, 2012; Yamakawa Tsuja and Ostos Marino, 2013). It is interesting to note that beyond the common definition of organizational innovation by denial (non-technological innovation), many publications reinforced this baseline of understanding by comparing the results found in

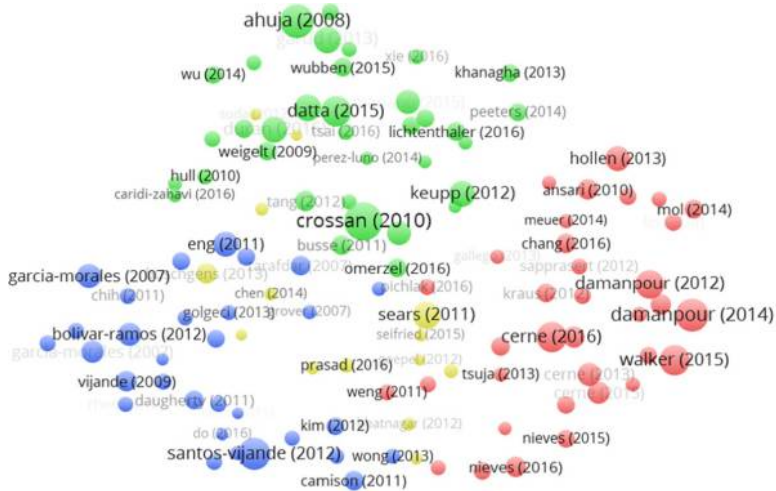


Figure 2. Bibliographic coupling cluster network

Notes: Cluster 1 (red); Cluster 2 (green); Cluster 3 (blue) and Cluster 4 (yellow)

organizational innovation with technological innovation – even if this was not the aim of the study (Walker *et al.*, 2015). This strategy may suggest that the concept is not yet completely accepted and requires this kind of validation. Out of this scenario, Ballot *et al.* (2015) presented a study on the combinative effect of the different types of innovation, treating them equally, by using a modular framework to explore the complementarity among them.

4.2.2 Cluster 2: knowledge and capability. Most publications arranged in this cluster are in some way related to the relation between innovation and the development of knowledge or capacity. An issue addressed is the distance between innovation and the previous knowledge of the company, which indicates some limitations for organizations. When innovation is not compatible with prior knowledge, companies may experience trade-offs between “organization forgetting” and “organization learning” (Mariano and Casey, 2015), or they may need formal technological innovation resources mediating the relation between prior knowledge and a new product/service launch (Tang and Murphy, 2012).

Alliances or inter-firm relations for knowledge development also appear in this cluster either by relating them to the performance directly (Lahiri and Narayanan, 2013), to the proposition of new perspectives for innovation evaluation (Lichtenthaler, 2016) or to development of both long-term and short-term innovation (Wubben *et al.*, 2015). On the other hand, Perez-Luno *et al.* (2014) showed that internally generated innovations seem to positively influence a company’s performance in both dynamic and stable environments. They concluded that “to perform better, it seems that companies need to focus on generation of radical innovations in dynamic environments and incremental innovations in stable industries” (Perez-Luno *et al.*, 2014, p. 508).

The relationship between organizational innovation and capacity also appears in this cluster but less frequently – in the number of papers – than knowledge increment. Gebauer (2011) concluded that “firms need to develop their ability to assess the most appropriate mode for management innovations, in order to enhance their dynamic capabilities” (p. 1249). This leads to believing that management innovation contributes to dynamic capabilities; on the other hand, Peeters, Massini, and Lewin (2014) presented a model of how absorptive capacity influences the efficiency of management innovation. This study stated that different configurations for absorptive capacity explain the successful implementation of management innovation, and that managers have a huge influence on the outcomes of innovation processes. Caridi-Zahavi *et al.* (2016) also highlighted this central role of senior leaders in the creation of knowledge integration capacity, which leads to the increase in innovation performance.

4.2.3 Cluster 3: learning for resource development. The emphasis found in the papers of this cluster is connected to the questions of organizational learning and the resource-based view. On the learning side, the authors discussed the topic of organizational learning and its impact on innovation (Kim *et al.*, 2012; Rhee *et al.*, 2010). The learning approach has concerns related to identifying the role of managers in organizational learning and the consequences of such an action on the company’s innovativeness (Bolívar-Ramos *et al.*, 2012; Wong *et al.*, 2013). This approach still considers not only the managers in general but also specifically the role of leaders and the use of transformational leadership in learning and innovation (García-Morales *et al.*, 2008; García-Morales *et al.*, 2011).

On the RBV side, the papers addressed the issue of the development of organizational resources, somehow connecting this development to the learning topic, as this development occurs mainly through learning. Thus, the authors discussed the RBV and innovation (Camisón and Villar López, 2010; Daugherty *et al.*, 2011), the development of dynamic capabilities via the organization (García-Morales *et al.*, 2007) and the need for organizations to be ambidextrous (Eng and Okten, 2011; Grover *et al.*, 2007; Prajogo and McDermott, 2014).

4.2.4 Cluster 4: human resources. This cluster, the smallest and the most scattered along [Figure 2](#), has a cross-boundary perspective with an interface with human resource topics. Although some publications in this cluster were exclusively concerned with organizational innovation ([Prasad and Junni, 2016](#); [Seifried and Katz, 2015](#)), not all of the publications followed this approach: they considered innovation as whole and measured together organizational innovation and technological innovation ([Bhatnagar, 2012](#)) or the innovation impact in terms of ambidexterity innovation ([Jansen et al., 2009](#)).

Leadership was the most frequently investigated topic. Specifically, the publications focused on how environmental dynamism ([Jansen et al., 2009](#); [Prasad and Junni, 2016](#)) and organizational size ([Vaccaro et al., 2012](#)) moderate the impact of leadership styles (transactional and transformational) on organizational innovation. [Seifried and Katz \(2015\)](#) offered a different approach, connecting the leadership theory and organizational culture with the dynamic capabilities view to explain the creation of organizational innovation in the US Armed Forces.

The other human resource topics examined include empowerment, engagement and turnover ([Bhatnagar, 2012](#)), the antecedents of innovation response behavior ([Goepel et al., 2012](#)), social capital ([Zheng, 2010](#)), team-level predictors of innovation ([Hulsheger et al., 2009](#)) and human resource practices, such as hiring and job design ([Jiang et al., 2012](#)).

4.2.5 Research agenda: future research question. Drawing on the four clusters from the research front mapped at the bibliographic coupling stage, we explore future research opportunities. Filling the gaps of this research agenda can help to shape our understanding of each research stream and lead to a solid concept of organizational innovation.

Core concept ([Ansari et al., 2014](#); [Ballot et al., 2015](#); [Birkinshaw et al., 2008](#); [Damanpour, 2010](#); [Damanpour and Aravind, 2012](#); [Meuer, 2014](#)):

- What are the differences between the organizational innovation that external changes drive (organizational context) and that internal changes drive (environment context)?
- How does the interactive effect of institutional legitimacy and managerial choice shape the adoption of managerial innovation?
- Do the maturity levels of organizational innovation and of the adopters co-evolve and shape the adaptation process?
- Do intrinsic differences exist between proprietarily developed and “off-the-shelf” organizational innovations? Over time, how do they evolve, and how are they adapted?
- What characterizes organizational innovation at the inter-organizational level? How is it managed across organizational boundaries with regard to other stakeholders, such as suppliers and customers?
- Do different combinations of forms of innovation drive different performance outcomes, including the degree of novelty associated with each type of innovation?

Knowledge and capability ([Caridi-Zahavi et al., 2016](#); [Lichtenthaler, 2016](#); [Mariano and Casey, 2015](#); [Tang and Murphy, 2012](#)):

- What are the effects of mechanisms, such as absorptive capacity and new knowledge creation capability, on prior knowledge and new product and service introductions?
- Do the performance effects of product innovation depend on the development of new services, processes, or business models?

- What are the effects of leadership on knowledge integration or of knowledge integration on innovation performance?

What types of conflict in the learning process can incompatible innovation create over time? What is the impact of incompatible innovation on individual knowledge absorption and intrinsic learning?

- Innovation may have negative impacts on organizational survival if the innovation is incompatible with the prior knowledge of the firm; what are the negative impacts of innovation? Additional studies must investigate organizational learning and absorption when knowledge gaps exist.

Learning for resource development (Bolivar-Ramos *et al.*, 2012; Camisón and Villar-López, 2011; Hernández-Mogollon *et al.*, 2010; Lopez-Cabrales *et al.*, 2009; Prajogo and Mcdermott, 2014; Rhee *et al.*, 2010):

- What are the consequences of introducing learning and innovation processes for quality improvement and staff satisfaction?
- What are the impacts of absorptive capacity and knowledge management capability on non-technical innovation?
- What factors are likely to mitigate the effect of open-mindedness on organizational innovation?
- How much social and organizational capital may enhance the value and uniqueness of human capital in the development of innovative activity?
- How does the external business environment affect innovation performance?

Human resources (Bhatnagar, 2012; Jansen *et al.*, 2009; Prasad and Junni, 2016; Vaccaro *et al.*, 2012):

- How effective are the different kinds of CEO leadership behaviors in organizational innovation depending on intra-firm factors, such as firm size, age, structure or culture?
- What are the effects of trust, leader-member exchange, person-organization fit and perceived organizational support as antecedents of organizational innovation?
- What are the moderators and mediators of the psychological empowerment, work engagement and organizational innovation relationship?
- What are the consequences of organizational innovation in organizational learning and firm turnover?
- What is the relationship between transformational and transactional behaviors and ambidexterity in organizational innovation?

5. Conclusion

Our findings provide, by means of bibliometric analyses, a broader view of both a historical theoretical frame (through the analysis of co-citations) and the current stage of research (through coupling analysis) on organizational innovation. The cluster analysis revealed the streams of research within both sides. In addition, we presented a research agenda based on the current research perspectives identified where we can look forward. Moreover, it is worth highlighting some points from the results.

First, despite the existence of the organizational innovation concept since the 1960s, we could affirm that no accordance exists with regard to definitions for and an understanding of organizational innovation. Furthermore, one of the clusters of coupling analysis in this paper focuses on the understanding of boundaries, with the goal of establishing concepts for organizational innovation. In sum, the definition is still in construction and in dispute.

Second, an issue that emerged is that continuity from co-citation clusters to coupling analysis is related to knowledge; however, we see a clear shift of focus from learning in the past (theory path) to capabilities in the present and future (current studies). The past mainly highlights the importance of knowledge (resource) and learning (process) for innovation; on the other hand, the present relates organizational innovation to capacity and knowledge increment.

Third, human resource studies exist for the past and present, proving their importance for the construction of this area of research, especially when considering research on leadership. Human resources as a consistent area in organizational innovation research is surprising: with the exception of teamwork in new product development, human resources is not a prevalent theme in innovation studies in general. Therefore, we believe that this is a promising area of research and should receive more attention.

This bibliometric analysis had limitations that should be addressed and taken into consideration in new studies. One limitation was that the study included one type of document, articles published in periodicals that represent part of the literature on organizational innovation. Another one relates to some selection bias because of the terms searched. Although the use of the terms can vary in each context, we used the best ones known, and therefore, we believe this to be a minor issue.

As discussed in the paper, the organizational innovation concept is transversal (as can be seen in the multiple clusters), and nevertheless, in development, it is what increases the value of the findings presented here. We move a step forward in clarifying the research on this phenomenon and paving the way for future empirical researchers to understand the mechanisms involved in it. Despite its limitations, this study contributes to the discussion on organizational innovation because it supplies this vibrant research field with the relevant theoretical basis mapping (via co-citations). More importantly, unlike most literature review, this study sheds light on the current trends in research on this issue (by coupling), which reveals different research perspectives on the same theme and supports a specific research agenda to guide future studies in the field.

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