A systematic literature review of the relationship between social capital and innovation

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Abstract—Today, innovation is a bulwark against potential risks perceived by companies. Unlike theories centered on technological networks, the incorporation of social capital in the innovation management literature has become an object of study in its own right, giving more strategic importance to relational antecedents in order to better understand the underlying mechanisms of the innovation process. The main objective of this article is to highlight the main advances in social capital and innovation between 2010 and 2020. Based on a sample of 80 mainly English-speaking publications, the results of the systematic review underline the interest of taking into account social capital as a potentially crucial driver in an increasingly globalized context.

Keywords—social capital, innovation, network capital, systematic literature review, scopus, web of science.

I. INTRODUCTION

More and more research is focusing on relational determinants to explain the success or failure of innovation processes. Accelerated by the drastic evolution of capital movements and the rise of globalization, these gradual changes are pushing many companies to establish increasingly less formalized relationships in order to improve their competitive potential. The concept of social capital, which is part of the reflection on the relational determinants of innovation, is considered the fountainhead of value creation. A considerable number of publications over the years have highlighted the increasing relevance of social capital for the success of innovation processes. Studies on social capital related to the field of management are flourishing. In the last few years, the term "social capital" has surged into management literature, and the use of the term has become in vogue. Furthermore, this concept offers the potential for academics and professionals to offer the opportunity to break free from the shackles of traditional approaches. However, there is currently little developed academic study on social capital, and there is no widely acknowledged consensus on what it should entail.

Initially conceived to enrich studies on community and personal relationship networks (Jacobs, 1965), the introduction of social capital in management science was well and truly investigated following the work of Nahapiet and Ghoshal (1998), defining it as "the sum of the actual and potential resources embedded in, available through, and originating from the network of relationships of an individual or social unit" (Nahapiet and Ghoshal, 1998). In this framework, the authors argue that the dimensions of social capital affect the conditions of exchange and recombination of resources, eventually leading to the renewal of intellectual capital, which would promote value creation as well as innovation. Therefore, individuals in a particular context are inevitably influenced by the social interactions they engage in, at both intra and inter-organizational levels. The objective of this paper was to systematically analyze and provide a comprehensive overview of the literature on the relationship between social capital and innovation. In order to structure our paper and the results that follow, we divided it into two parts. In the first part, we review the genesis of social capital and innovation as well as the identification of the methodology and the research protocol. The second and final part deals with the discussion of the results of our documentary corpus and the proposal of avenues for reflection.

II. Research strategy and protocol

Initially designed for the medical field, the systematic literature review has gradually taken its place in the various fields of knowledge in order to provide a comprehensive overview of the relevant literature. A systematic review is characterized by an "explicit, rigorous, and transparent methodology" (Greenhalgh et al., 2004) in order to avoid the common biases of traditional literature reviews. Following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) standard, a review of the scientific literature was conducted over the past 10 years (2010–2020) by investigating the Scopus and Web of Science databases.
A more general consultation on the Google Scholar database was carried out in a second step in order to increase our corpus of literature and reduce the risk of exclusion of relevant documents. Using Zotero software, each document was classified according to the two themes "social capital" and "innovation". The documents were then selected according to the pre-established criteria and inserted into the Excel software containing the metadata. This review includes publications from 2010–2020 with articles in English or French in indexed journals. More than 2600 studies were found using the Boolean search terms [innovat*] and [social capital]. These were filtered by reading the abstracts and even the full texts to decide whether to keep or discard the study in the final dataset. In addition, the inclusion of articles from the field of tourism seemed to us to be a judicious choice because of the abundant literature dealing with the social capital-innovation relationship. We deliberately excluded all articles that did not have sufficient word frequency, thus rejecting the different types of innovation (public, social, agricultural, etc.).

The figure below shows the geographical distribution of the most important countries in terms of publications. Spain has the lion's share (33%), followed by China (18%), Taiwan (10%), and Italy (4%). This figure shows the rise of research in Asia, particularly in China and Taiwan.

Among the research articles, we note the predominance of quantitative research, a corollary of the domination of the positivist epistemological posture. At this stage, three types of scientific research approaches have been identified in our literature review: 1) the quantitative approach (89%), 2) the qualitative approach (7%), and 3) the mixed approach (4%). This result is presented in the following figure:

Our sample is characterized by the predominance of quantitative research whose data are collected mainly by questionnaire. As for the analysis methods, there is a profusion of use of structural equation methods, notably under the two approaches of partial least squares and covariance. In addition, our sample also identifies articles mobilizing social network analysis methods, which are particularly well suited to the study of social capital. Unlike the "complete network" method, almost all studies adopt an "ego-network" approach (e.g., Yu
Innovations, norms, and trust relationships by mobilizing other factors, including extrinsic incentives (Hu and Randel, 2014), knowledge quality and sharing (Ganguly et al., 2019; Kim and Shim, 2018), family involvement (Pucci et al., 2020), alignment of strategy and human resource management (Wang et al., 2017), and the dynamics of "ego" networks (Yan and Guan, 2018). The majority of researchers have studied these concepts in one way or the other.

On the other hand, recent work is more concentrated in Asia, particularly in China, where Taiwan represents a historical-cultural framework that is quite different from that of the West. Our results also reveal a conceptual metamorphosis of social capital in its relation to innovation. In its traditional sense, social capital embodies the primacy of a mode of community governance inherent in the networks and relationships generated by socialization and sociability (Borgatti & Foster, 2003). In line with Coleman's work, a number of authors have subsequently corroborated this approach in an even more inclusive way, seeing it as a characteristic of communities (Woolcock & Narayan, 2000) structured around trust and norms that allow for collective action, but also referring to the feedback of actions within the community: "Social capital generally refers to trust, concern for associates, a willingness to live by the norms of one's community and to punish those who do not" (Bowles and Gintis, 2002).

However, the hegemony of a "sub-socialized" view of social capital by limiting it to personal considerations alone constitutes an alternative voice to the traditional conception. From a utilitarian perspective, the literature on social capital has come to define it as a resource where the motivations for investment are more likely to privilege selfish intuition (Monge et al., 2003) at the expense of community and collective values (Ghosh et al., 2002). This is a significant departure from Coleman's assertion that "social capital is the norm of forgoing self-interest and acting in the interest of the community" (Coleman, 1988). This formulation is part of the ability to establish a common ground of explanation for socio-economic phenomena (Ponthieux, 2006).

For their part, Huggins and colleagues (2012) proclaim that self-interest and the culture of obligation, norms, and trust cover different realities that are fundamentally at odds with each other. Thus, Dasgupta (2005) highlights that community relationships may impede impersonal transactions from taking place (Dasgupta, 2005). As a result, he adopts a rather limiting definition of social capital as "networks between people whose members develop and maintain trust in each other to keep their promises through the mutual enforcement of agreements" (Dasgupta, 2010, p:50). Drawing on Williamson (1993), business networks are similar to so-called "calculative" networks since they consist of providing satisfaction through expected economic benefits (Hite and Hesterly, 2001; Nkakleu et al., 2018). These business networks led to the emergence of an inter-organizational asset called "Network capital."

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**II. Discussion**

Up to now, limited research has been attributed to investigating the relationship between social capital and innovation. The present study aims to address this gap in the literature. The results obtained through our systematic review of the literature are, however, divergent and fragmented, even antagonistic at different levels of depth. In particular, we find that there is a significant influence of social capital on innovation and that the different dimensions (structural, relational, and cognitive) produce varied effects. From the same perspective, we draw some conclusions that we consider crucial and that we believe can shed light on these results. Based on the studies conducted between 2010 and 2020, we can conclude that this relationship is part of a temporal continuum, illustrating a strong dynamism. Recent empirical studies have gradually begun to reconsider the social capital-innovation relationship by mobilizing other factors, including extrinsic incentives (Hu and Randel, 2014), knowledge quality...
This concept was in fact popularized by Huggins and his colleagues (2012), who consider it a technical device that materializes an instrumented conception of inter-firm networks. Indeed, the concept of network capital constitutes an alternative to social capital insofar as it allows for a resolutely calculative approach. This type of network implies a specific configuration that allows it to support the prodigious rise of the globalization of markets and the possible international turnings. It appears then as a dynamic form to meet the economic expectations of companies (Catanzaro et al., 2012).

From a dynamic perspective, network capital is presented as a relational asset derived from collaborative networks designed to facilitate knowledge flow and innovation (Huggins and Thompson, 2017; Zhang and Luo, 2020). Unlike social capital, network capital is not spatially bounded (Huggins, 2010), especially since the interweaving of various types of actors in post-industrial societies intends to highlight the gradual transition of proximity modalities between organizations from physical to virtual space (Tallman et al., 2004; Davenport, 2005). In this sense, the acquisition of new knowledge is conditioned by technological distance (Capaldo and Messeni Petruzzelli, 2015), hence the need for some level of knowledge miscibility (Zhang and Luo, 2020). Non-neighborly organizations are often equally, if not better, able to transfer valuable knowledge across spatial boundaries when a high-performing collaborative network is in place. As a result, such a construct is not only formed through a simple exchange of information or practices, but also mutually contributes to the development of a product that results from the articulation of a large number of actors engaged in a collective process of improvement and problem solving (Torre, 2008). The study by Zhang and Luo (2020) has enriched the development of network capital by subdividing it into four dimensions: the combinatorial capacity of knowledge, knowledge stocks, technological distance, and network efficiency.

III. CONCLUSION

Based on a sample of 80 articles, the results of our literature review highlight the role of social capital as a catalyst for innovation processes. The results of the systematic analysis of the literature review illustrate a relatively exhaustive review of the articles collected from the "Scopus" and "Web of Science" databases, complemented by an investigation of the Google Scholar database. Nevertheless, the results of our study must be taken with caution. There are probably unpublished works or works in other languages that were not included. At the methodological level, it might be interesting to combine the present study with a bibliometric analysis, which has the advantage of providing quantifiable and objective results (Nerur et al., 2008). Finally, it would probably be worthwhile to mobilize content analysis to provide innovative results and make relevant recommendations.

IV. REFERENCES


Technology Transfer, 1–23.


