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Interconnected Areas of Research: Collaborations in Social Innovation

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Interconnected areas of research: Collaborations in social innovation

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Abstract

Social innovation, as an interdisciplinary field of research, deals with the concept of value creation in the context of societal aspects. According to the conventional definition of innovation in which value creation mostly refers to commercialization, various actors in the value chain, whether vertical (suppliers) or horizontal (customers, competitors), aim at maximizing their own benefits. Social innovation, on the other hand, puts society at the center. Thus, different parties collaborate to find more efficient, effective, and sustainable solutions to social problems. In this study, by using the terms collaboration and social innovation together, we aim at revealing themes in this research field throughout the years between 1970 and 2016. We apply co-citation analysis to find out theoretical foundations of this recently emerged field. Accordingly, we obtain six clusters with different attributes, such as cross-sector partnerships in social innovation, the definition of social innovation, transition studies, social entrepreneurship, innovation studies, and inter-organizational relations. As for the first cluster, cross-sector partnerships are initiated based on the idea of collective action. Therefore, partners from public, private, and non-profit institutions commit their resources to networking in order to find a new solution to a social problem. Studies in the second cluster aim at identifying the field of social innovation. Studies on grassroots innovation in the third cluster include a focus on sustainability of social innovation activities, while the fourth cluster is composed of studies dealing with social innovation in relation to social entrepreneurship. Therefore, they are treated as nested concepts. The fifth cluster includes papers studying social innovation by using the terminology of innovation. The final cluster is themed as inter-organizational relations with specific emphasis on network organizations as strategic alliances, joint ventures, franchises, and research consortia. Based on the results of co-citation analysis, we conclude that studies on collaboration in social innovation are an interconnected area of research except for one cluster, namely transition studies.

Keywords. Co-citation, social innovation, collaboration, bibliometric analysis, Vosviewer

1. Introduction

The number of studies on the concept of social innovation has increased overwhelmingly in recent years. This concept, unlike the traditional definition of innovation emphasizing value creation activities such as idea generation, prototyping, and commercialization, deals with the social benefits of the created value and aims at sustaining these benefits. While the profit-oriented innovation paradigm does not place much concern for the environmental impacts of production, social innovation activities focus more on the production of environmentally friendly technologies, installation of energy-saving facilities, and the roles of local actors in finding solutions to problems emerging at local levels.

Achieving predetermined societal goals requires the inclusion of actors from different sectors such as firms, non-profits, local actors, and society at large. These parties form various types of collaborations such as cross-sector partnerships, social alliances, and social partnerships. Cross-sector partnerships, being used interchangeably with the concept of social alliances (Le Ber and Branzei, 2010), emerge between firms and non-profit organizations in order to achieve a common societal goal, while both parties sustain their efforts over maximizing their own benefits. In social alliances, unlike strategic alliances, non-profit organizations or, broadly speaking, the whole of society is one of the parties. When commercial firms become party to social innovations, they tend to see themselves as ‘good corporate citizens’ (Berger et al, 2004). This type of partnership enables each party to focus on social problems and find appropriate solutions with the help of non-profit organizations. In other words, all parties including both non-profits and firms benefit from these partnerships. Another type of partnership is called social partnerships (Seitanidi and Crane, 2009). Similar to social alliances, all partners, being composed of public and private sector institutions, share their resources in order to accomplish a predetermined goal. Complementarity among partners’ resources is desired to achieve success. Since each party has different motivations, a detailed examination is required to obtain successful outcomes. Such partnerships sometimes arise from necessity. For instance, firms may not have access to local markets due to their distinctive features and need to get in touch with local communities to clearly identify their needs and expectations. Moreover, developing the skills required to solve problems is costly both in terms of time and money. Thus, firms outsource some assets such as knowledge and skills due to production costs. These partnerships, on the other hand, commonly end by mutual miscommunication in a short time. Each party may have a fear of losing control and power, or mistrust may develop among parties. Considering all these examples, we aim at understanding the structure of collaborations in social innovation activities focusing on the studies that terms of collaboration and social innovation intersect. There has not been any study dealing with these practical issues.

Another shortcoming in the literature is that there has not been any systematic framework concerning the partnership structure in social innovation activities. Despite some studies claiming that social innovation is a fragmented and disconnected field of research (Santana, 2014; Dawson and Daniel, 2010; Pol and Ville, 2009), the number of studies determining the antecedents of social innovation is few (van der Have and Rubalcaba, 2016). Further, *what makes social innovation different from technological innovation?* is another valuable question that needs further consideration. It is problematic to diversify technological innovation activities from social innovation activities. For technological innovations, the main advantages of collaboration are mentioned as having access to necessary skills, acquisition of necessary capabilities or resources due to higher operations costs, learning from partners, and the nature of the work, such as the creation of a common standard (Schilling, 2010). Do social innovation activities enjoy these same advantages observed in technological innovations?

In addition to these, there has not been a measurement methodology that enables researchers to conduct micro, meso, and macro level analysis and compare the results of different cases (Mulgan, 2006; Mulgan et al, 2007). In the innovation literature, firms are asked whether they

collaborate with other organizations to implement their innovation activities. These organizations include such actors as suppliers, buyers, competitors, universities, research institutes, and financial institutions. For technological innovations, two types of collaboration, vertical and horizontal, are frequently mentioned in the literature. To illustrate, firms collaborate with suppliers in the production of new products or services through vertical relations, while collaboration with competitors occurs through horizontal relations. Is this collaboration structure observed in social innovation activities? Which type of collaboration pattern is observed in these activities? Although Community Innovation Surveys are criticized by a great amount of literature (Beyhan et al, 2009; Carvalho, 2006; Godin, 2001; 2002; 2007), they do provide a basis for measuring technological innovations. Is it possible to build up a framework to measure social innovation activities?

In order to find out the answers to all these research questions, we aim to analyze articles on partnership in social innovation with the help of bibliometric analysis. For this reason, studies on social innovation and partnership in the Web of Science (WoS) database between 1970 and 2016 have been examined. As a method of analysis, co-citation analysis is used to determine the theoretical foundations of studies on collaborations in social innovation. This analysis demonstrates the frequency with which two documents are cited together by other documents. Higher values indicate a certain amount of knowledge in that field. Clusters shown by Vosviewer software reflect how collaborations in social innovation literature are shaped throughout the years investigated. This study contributes to the current literature in at least three ways. Firstly, to our knowledge, collaboration in social innovation literature is only now elaborated on in this present study. Secondly, core themes and potential diversification among research streams in the field are determined by using co-citation analysis. Thirdly, we propose a set of implications based on the current structure of the network. The following section elaborates on data and methodology. The third section focuses on results. We discuss conclusions and implications for further research in the last section.

2. Data and Methodology

2.1. Sample Selection

Bibliometric data is collected from Thomson Reuters Web of Science database by using the topic search option. We use the phrase "social innovation" in the first stage and constrain our sample with the keywords "collaboration," "network," or "partnership" in the second stage in order to find papers falling into the areas where social innovation and collaboration intersect. We also limit our sample to journals in selected Web of Science categories¹. Additionally, we

¹ management or psychology applied or business or multidisciplinary sciences or education special or social sciences interdisciplinary or economics or industrial relations labor or environmental studies or history of social sciences or planning development or health care sciences services or education educational research or behavioral sciences or architecture or sociology or hospitality leisure sport tourism or anthropology or health policy services or social work or energy fuels or nutrition dietetics or urban studies or psychology multidisciplinary or medical ethics or public administration or area studies or geography or social sciences biomedical or environmental sciences or literary reviews or social issues or linguistics or public environmental occupational health or international relations or law or education scientific disciplines or art or communication or family studies or geriatrics gerontology or agricultural economics policy or forestry or green sustainable science technology or women s studies or folklore or business finance or water resources or film radio television or political science or transportation or ethnic studies or psychology social or psychology educational or philosophy or humanities multidisciplinary or history philosophy of science or archaeology or gerontology or history or agriculture multidisciplinary or ethics or genetics heredity or ecology.

select document type article, and the time span of the study covers the years between 1970 and 2016. The first stage of our topic search options results in 335 articles. The sample reduces to 97 articles in the second stage. We eliminate 16 irrelevant articles through carefully reading the abstracts. The final sample size is composed of 81 articles with 3865 papers in the references. During the data cleaning procedure, we eliminate 114 duplicate reports in the reference list (for example, mistyped author names) and we transform the data into a standard format. Looking at the distribution of the main articles in the collaboration-social innovation field, except for some years such as 2003, 2009, 2013, we observe an increasing trend in the number of articles during the period investigated. As shown by Figure 1, the first papers in this field first appeared in 2003.

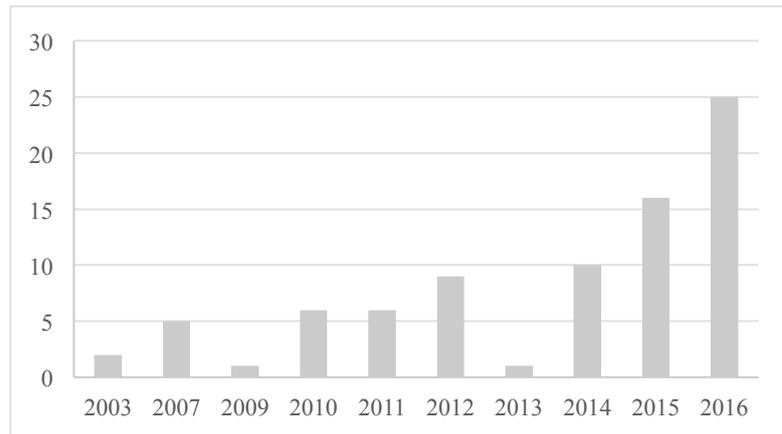


Figure 1. The distribution of web of science publications on social innovation and collaboration (2003-2016).

Table 1 demonstrates the occurrence and co-occurrence values of the author keywords in publications. As expected, the phrase social innovation appears most frequently in the list and collaboration comes next. Further, as observed in the examples of innovation, sustainability, and urban generation, variation in the keywords on the list attracts attention.

Table 1. Co-occurrence of the author keywords²

| <i>Label</i> | <i>Occurrences</i> | <i>Co-occurrences</i> |
|--|--------------------|-----------------------|
| <i>social innovation</i> | 36 | 22 |
| <i>Collaboration</i> | 9 | 6 |
| <i>co-creation</i> | 4 | 3 |
| <i>Innovation</i> | 4 | 3 |
| <i>social entrepreneurship</i> | 4 | 3 |
| <i>social networks</i> | 4 | 3 |
| <i>Innovations</i> | 4 | 3 |
| <i>corporate social responsibility</i> | 3 | 3 |
| <i>Learning</i> | 3 | 2 |
| <i>actor network theory</i> | 2 | 2 |
| <i>collaborative consumption</i> | 2 | 2 |
| <i>cross-sector partnerships</i> | 2 | 2 |
| <i>grassroots innovation</i> | 2 | 2 |
| <i>grassroots innovations</i> | 2 | 1 |
| <i>human services</i> | 2 | 2 |
| <i>open innovation</i> | 2 | 1 |

² Occurrences show the number of occurrences of the keyword. Co-occurrences show the occurrence of the keyword with other keywords.

| | | |
|------------------------------------|---|---|
| <i>public-private partnerships</i> | 2 | 2 |
| <i>regional development</i> | 2 | 1 |
| <i>renewable energy</i> | 2 | 0 |
| <i>Resilience</i> | 2 | 2 |
| <i>social innovation</i> | 2 | 0 |
| <i>socio-technical systems</i> | 2 | 0 |
| <i>Sustainability</i> | 2 | 2 |
| <i>Transformation</i> | 2 | 2 |
| <i>urban regeneration</i> | 2 | 0 |
| <i>Vulnerability</i> | 2 | 2 |

As a generic field of study, social innovation has been studied in journals mainly related to business and society, organization management, and business ethics. Among these, *Business & Society*, with an extensive outlet within a range of societal impacts and intersections with business, receives the highest citation record to a single article (see Table 2). The journal started publication activities in 1960. Since then, mainly society-oriented business articles have been published in the journal. In recent years, corporate social responsibility is the focus³. Another field journal, *Group & Organization Management*, has the second highest number of citations to a single article. Other journals belonging to other scientific fields such as sociology or urban studies also attract attention. The School of Urban studies is represented by two well-known journals: *European Urban and Regional Studies* and *Urban Affairs Review*.

Table 2. Citation statistics of sources ⁴⁵

| <i>Label</i> | <i>Documents</i> | <i>Citations</i> |
|---|------------------|------------------|
| <i>Business & Society</i> | 1 | 7 |
| <i>Group & Organization Management</i> | 1 | 3 |
| <i>Journal of Business Ethics</i> | 4 | 3 |
| <i>Academy of Management Perspectives</i> | 1 | 2 |
| <i>Human Service Organizations Management Leadership & Governance</i> | 3 | 2 |
| <i>Journal of Business Research</i> | 4 | 2 |
| <i>Sociologia Ruralis</i> | 2 | 2 |
| <i>Energy Policy</i> | 1 | 1 |
| <i>European Urban and Regional Studies</i> | 1 | 1 |
| <i>Global Environmental Change-Human and Policy Dimensions</i> | 1 | 1 |
| <i>Health Promotion and Chronic Disease Prevention in Canada-Research</i> | 1 | 1 |
| <i>Journal of Public Policy & Marketing</i> | 1 | 1 |
| <i>Journal of Social Policy</i> | 1 | 1 |
| <i>Organization Science</i> | 1 | 1 |
| <i>Paths of Convergence for Agriculture, Health, and Wealth</i> | 1 | 1 |
| <i>Urban Affairs Review</i> | 1 | 1 |

2.2. Methodology

There are three commonly used citation analysis approaches, namely direct citation, bibliographic coupling, and co-citation analysis (Boyack and Klavans, 2010). The first one

³ In 2017, this journal published four special issues on corporate social responsibility. The theme of the first issue is 'SMEs and CSR in Developing Countries'. A related concept, Corporate Sustainability, is the theme of the second special issue with a specific emphasis on new perspectives, research methods, and theories in CSR. Another issue is composed of papers dealing with CSR applications in China. Additionally, *Business & Society* included measurement of CSR applications as a themed issue in July, 2017.

⁴ Documents represent the number of papers published in the journal on the list. Citations show the number of citations documents received.

⁵ Sources in table belong to main papers that we obtained based on our WoS search.

demonstrates the direct link between two papers, while bibliographic coupling and co-citation go further. Having at least one common reference is an indication of a link between two articles for bibliographic coupling (Kessler, 1963). Co-citation occurs between two articles when both are cited by another article (Crane 1972; Small, 1973). Each technique could be used depending on the objective of the study conducted. Bibliographic coupling is an appropriate method when the objective is to determine recent trends in the field. Co-citation, on the other hand, demonstrates the theoretical foundations of the field (Kovacs et al, 2015; Loi et al, 2016; van der Have and Rubalcaba, 2016). The more often two articles are cited together, the more strengthened the link becomes between these articles as an indication of belonging to the same scientific discipline.

Co-citation analysis

Social innovation emerged as an interdisciplinary field of research that attracts the attention of many scholars from various fields. However, there are only a few studies dealing with the knowledge base of this area. Cluster analysis of the links between the main articles from Van der Have and Rubalcaba (2016) reveal four academic communities: community psychology, creativity research, social and societal challenges, and local developments. These clusters show the main themes observed in the area of social innovation. In this study, we focus on papers studying collaborations in social innovation research. In order to reveal the foundations of this field, we conduct co-citation analysis (see Figures 2 and 3) of which nodes represent papers in the reference list of the main articles. It refers to the frequency with which two documents are cited together.

We use a technique called Vos algorithm to visualize the similarities and determine clusters in the co-citation network that are anchored in minimizing the weighted sum of squared distances between all pairs of items (van Eck et al, 2010). Vos places items in space with multidimensional scaling, so that the distance between any two items reflects the degree of similarity or association between these items as precisely as possible. The similarities are calculated by the association strength shown in the following equation where i and j represent two papers in our case.

$$as_{ij} = \frac{c_{ij}}{c_i c_j} \quad (1)$$

The association strength (as_{ij}) is thus calculated by the ratio of the i and j papers to the co-occurrence numbers (c_{ij}) of the observed co-occurrence numbers ($c_i c_j$). As emphasized by van Eck et al. (2010), both scaling and VOS algorithm give similar results, but scaling has shortcomings, such as locating the most important items in the center and less important items in the periphery. However, Vosviewer is not influenced by these weaknesses.

3. Results

We download 97 cited references as full-text and extract title, keywords, and abstracts, carefully read all the papers in each cluster, and eliminate 16 papers that do not fall into our area of interest. We only include references that have been cited a minimum of two times (Kovacs et al., 2015). We determine 6 clusters based on cited references we derive from 81 papers. The maps of the clusters are shown in Figures 2 and 3. Each cluster is represented by a different color. For each cluster, papers having high values of the link, total link strength, and more than 3 citations are used in order to determine the theme of each cluster.

Theme 1- Cross sector partnerships in social innovation

Figures 2 and 3 demonstrate the clusters assigning different colors. Cluster 1 is shown in red and includes the most influential papers in terms of their citations, links, and total link strengths in the network. It is composed of 24 articles and is named *Cross-sector partnerships in the context of social innovation*. In this cluster, there are two methodological studies, Yin (2003)

and Glaser and Strauss (1967), that are based on case study analysis and grounded theory approaches. These two methodologies are heavily used in social innovation literature due to the fact that revealing the dynamics of collaborations for social innovation activities requires detailed analysis based on in-depth interviews or other methodologies of case analysis. Through close reading of the remaining papers in this cluster, we realize that this field targets the essential factors of cross-sector partnerships (Le Ber and Branzei, 2010; Austin et al, 2006, Nicholls and Cho, 2006⁶) and formulation of effective corporate social and environmental responsibility policies (Seitanidi and Crane, 2009; Berger et al., 2004; Rondinelli and London, 2003; King, 2007) with the help of collaborations.

The term social innovation is defined as finding a new solution to a social problem that is more efficient, effective, and sustainable than the existing one (Le Ber and Branzei, 2010). In order to achieve this goal, partners from different sectors come together, which is known as cross-sector partnerships. Elsewhere, Berger et al. (2004) argue that cross-sector partnerships are the engine of collective action. Accordingly, firms recently became aware of the fact that their conventional vision giving emphasis to profits is no longer valid, so they started to position themselves as good corporate citizens. This recent movement is called social alliances, which can be important value generators for companies, non-profits, and society at large. Contrary to strategic alliances, which necessitate resource sharing among similar business parties, social alliances, oriented towards non-economic objectives, are composed of at least one non-profit partner. Another attempt to define essential factors for cross-sector collaborations, Bryson et al (2006) treat inter-sectoral collaborations, referring to partnerships including government, business world, and non-profit organizations, as a structure that enables each partner to respond to complex social problems. They mainly focus on the factors that may have an impact on collaboration formation, constraints, process, and governance of all actors being involved in the collaboration. One of the crucial factors is the presence of a turbulent environment that forces cross-sector collaboration. In other words, collaboration stems from a necessity, due to a single party's failure at solving the problem.

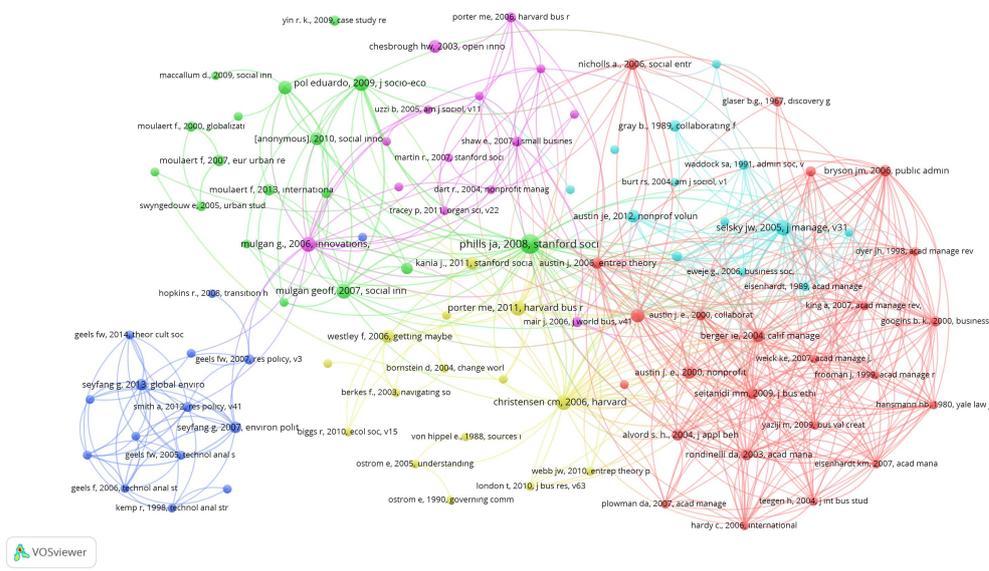


Figure 2. Co-citation network of papers in collaborations in social innovation (1970-2016).

⁶ Nicholls and Cho (2006) is one of the studies having the highest co-citation scores. It is an edited book and papers in the field of social entrepreneurship mostly cite this publication. It is a well-known book in the field that introduces an approach to new models of sustainable social change. In this book, the focus is on sustainability and social entrepreneurship.

'social problem-solving mechanisms among organizations' (Waddock, 1989). The definition refers to the coordination of organizational resources to solve societal problems, which in turn provides mutual benefits both for private sector partners and for society. Austin (2006) treats social partnerships as a formal agreement and adopts an approach that combines social and business entrepreneurship using an analytical model, aiming to explore the similarities and differences between these two types of entrepreneurship and to develop a more systematic approach to social innovation, both for policymakers and for researchers. In a similar vein, Rondinelli and London (2003) focus on how companies and nonprofit organizations effectively share knowledge and expertise on environmental issues through strategic partnerships. They focus on the strategic criteria that help executives evaluate the feasibility of cross-sector collaborations. Alliances are the preferred type of collaboration for firms due to the fact that internal development of skills required for environmentally friendly solutions is too costly. For managers, a desired cross-sector collaboration plays a dual role in the company's internal operations, exploiting internal skills on the one hand, and gaining competence in new skills on the other. Focusing on collaboration for environmental protection, Rondinelli and London (2003) observe three types of collaboration between companies and non-profit organizations. These are *arm's length*, *interactive collaboration*, and *intensive alliances*. The first one encourages workers to participate in non-profit organization activities. Interactive collaborations include initiating a project such as a certificate programme in collaboration with non-profit organizations. Both parties play an active role in managing the project. The last one, intensive alliances, differs from the other two collaboration types with respect to its character. Thus, companies may need to set up formal alliances with non-profit organizations depending on the extent of the problem, or non-profit organizations may need the help of companies to prevent a societal problem; for instance, environmental pollution before it generates dramatic outputs for society.

For all types of partnerships mentioned above, the collaboration process does not work smoothly from the very beginning to the end. Collaboration between private and non-profit sectors may fail due to differences in their motivations. While business partners must focus on maximizing profits, social benefit is the focal point of their non-profit counterparts (Le Ber and Branzei, 2010). Additionally, as observed by Berger et al (2004), the collaboration may fail due to various reasons, such as talking in different languages, being inexperienced in working with the non-profit sector or a company, mistrust among partners, misallocation of costs and benefits, and problems arising from power and time issues. In addition to these factors, Rondinelli and London (2003) argue that both parties may have concerns such as fear of losing control and reputation that generate undesired results for collaboration. Each partner, therefore, needs to understand the nature of the relationship and to clarify the conditions of achieving mutual benefits before forming a partnership (Googins and Rochin, 2000). Besides, each partner should consider these issues during various stages of the partnership, such as partner selection, risk assessment techniques, partnership design, and institutionalization. How well they deal with these issues determines the degree of success.

Theme 2- Defining social innovation

This cluster is shown in green and is composed of 17 studies that focus on *the concept of social innovation and its content*. Pol and Ville (2009) define social innovation and distinguish social innovation from business innovation by focusing on its effects on both quality and quantity of life. The concept of social innovation, unlike business innovation, refers to the generation of new ideas without profit maximization motives. They propose a new term to understand what social innovation is: *a desired social innovation* targeted at improving living conditions both quantitatively and qualitatively. Likewise, Phills et al (2008), in their paper "Rediscovering social innovation," argue that social innovations differ from technological innovations in terms of distribution of benefits throughout society, but describe social innovation by using a similar terminology. Accordingly, social innovation should be novel, as is expected for technological innovations. However, social innovations put society at the center and are concerned with social problems that couldn't be solved with a profit-oriented approach. Similarly, Howaldt and

Schwarz (2010) define the concept of social innovation by focusing on the differences between social and technological innovation. Thus, the nature of the outcome is the core difference. For social innovations, the outcome is to meet the social needs that existing commercial and public sectors fail to satisfy. However, they highlight that it is difficult to distinguish social innovation from technological innovation by using this argument because technological innovation may also aim at meeting social needs. Also, there are papers dealing with the definition of the field by applying a similar approach observed in technological innovations. To illustrate, Murray et al (2010) focus on processes of social innovation including stages as prompts, idea generation, prototyping, sustaining, scaling, diffusion, and systemic change, respectively. In the first stage, initial conditions, which could be either a catastrophic event or an inspiration leading to changes in future stages, are established. Following the idea generation stage, the outcome (e.g., a novel project idea that targets improving the health conditions of refugees) is tested during the prototyping stage. The remaining phases are implemented respectively. Brown and Wyatt (2010), using a similar approach, apply the three-stage model in conducting design-led social innovation, including inspiration, ideation, and implementation.

Mulgan et al (2007) deal with the definition of innovation, activities, actors, and stages of social innovation and build up a framework called 'connected difference theory'. Accordingly, social innovation activities could only be achieved under certain conditions that trigger communication among different actors. Moulaert and Nussbaumer (2005), in attempting to define the field of social innovation, discuss the main limitations of the territorial innovation model and its failure to meet regional needs, and propose an alternative model called 'community development based on social innovation'. Moulaert et al (2007), in a similar vein, examine the institutional change patterns in the context of urban regimes and find that institutional change is path dependent. From a social innovation point of view, in the generation of alternative actions, local communities work more effectively than their counterparts at the national or global level due to two main reasons. Firstly, local communities are more knowledgeable about the needs of the local society so they can govern this process more efficiently. Secondly, at the local level, values (identity and vision) are regenerated through social interaction. Swyngedouw (2005), introducing a new perspective in social innovation, examines the relationship between government and society in the context of governance. Beyond the traditional roles of government and citizens, known as governing body and citizenship, new rules of the game depend on designing institutional arrangements that give a greater role to business stakeholders and civil society in policymaking. Governance mechanism in his paper is defined as socially innovative institutional arrangements organized as a network of relationships including government and civil society organizations.

Theme 3- Defining social entrepreneurship

This cluster is shown in light blue on the map and includes 14 papers. It is labelled *the definition of social entrepreneurship*. The most influential papers in this cluster are Mair and Marti (2006), Mulgan (2006), Porter and Kramer (2006), and Shaw and Carter (2007). The scope of social entrepreneurship is discussed by Mair and Marti (2006) with special emphasis on its potential to create social value. Shaw and Carter (2007) discuss the similarities and differences between social entrepreneurs and business entrepreneurs. They both carry similar characteristics with respect to individual features such as leadership, charisma, and inspiring others; but social entrepreneurs behave differently from their counterparts in the business world in that they focus more on ethical values. Additionally, their mission is different. For instance, while profit maximization is the primary objective for business entrepreneurs, meeting social objectives is the primary motive for social entrepreneurs. Another difference between social and business entrepreneurs is related to innovativeness. While it is possible to become an entrepreneur without any innovation effort, for social entrepreneurs, innovation is essential. In

this cluster, we also observe that Mulgan (2006)⁷, placing emphasis on the *processes of social innovation*, argues that primary social innovation activities are performed by the great efforts of social entrepreneurs. Porter and Kramer (2006), unlike these two articles, deal with social value creation ideas from the corporate social responsibility perspective and focus on the successful results of activities driven by society's demands as observed in the Toyota case. The company's early response to customer complaints about car emissions led to the production of the hybrid-engine. In a similar vein, Chesbrough (2003) discusses closed and open innovation in the case of Xerox PARC. While the vertical integration model based on closed innovation works for a large, established company, PARC necessitated a new business model that required collaborating with other parties, which is called open innovation.

Among these papers, we also mention Granovetter (1973), namely *Strength of Weak Ties*, one of the papers cited as a methodological paper in this cluster. He argues that weak ties developed through the relationships among members of different groups led to the emergence of new and different ideas, which in turn generates greater value for all members. Social entrepreneurs play a critical role in establishing relationships among different groups such as business, non-profits, and society.

Theme 4- Transition studies

There are 15 papers in this cluster shown in blue, which belong to *transition studies* emphasizing the important role of niche activities in satisfying the needs of society. Seyfang and Smith (2007) use the term 'grassroots innovation' to describe networks of activists and organizations serving this purpose. They describe the role of innovation and community action in sustainable development and explore the link between technological innovation, which is based on a market-oriented approach placing emphasis on profits for rental seekers and community action. Technological innovation is classified as product, process, marketing, and service innovations, the supply side of which is composed of firms and the demand side of consumers. The main purpose is to sustain market-based exchanges, without considering societal needs and ideologies. Community action, on the other hand, reflects the other side of the coin, putting society at the center. *Grassroots* efforts provide an alternative way of encouraging innovative behavior in areas where societal needs are unmet. For instance, Smith and Raven (2012) highlight the three important areas of shielding, nurturing, and empowerment that need further consideration because they lack a systematic approach to mobilize resources in favor of niche improvements targeting these areas. They also deal with the main constraints of a linear approach to mobilize resources and propose a dynamic approach attempting to reveal complex relations among variation, selection environments, and existing technological regimes⁸.

Considering existing applications in niche development fields, the learning process is not well developed and there is no clear link between innovative niche activities and the existing regime (Seyfang and Longhurst, 2013). In a similar vein, Geels and Schot (2007) discuss transition pathways as transformation, reconfiguration, technological substitution, de-alignment, and realignment. They introduce a multilevel perspective claiming that transition paths are not deterministic and relations among pathways are not automatically established, but rather follow their own paths due to their dynamic nature.

⁷ As seen in Figures 2 and 3, Mulgan (2006) is connected to Mulgan et al (2007). Both papers, in an attempt to build up a framework for social innovation, focus on the definition of social innovation and the role of connectors on successful social innovation activities.

⁸ Hargreaves et al (2013), similarly, find that existing niche-building theories do not explain much about the diversity in societal systems and do not meet the needs of society due to its dynamic structure. With specific emphasis on sociotechnical niches in protected spaces, they concluded that most niche-related activities are implemented at the national level and in the diffusion of new projects in niche areas; national networks play a crucial role.

Theme 5- Innovation studies

This cluster is shown in yellow and consists of 15 papers on *innovation studies*. The main papers with respect to their links, total links, and citations, are Christensen et al (2006), Kania and Kramer (2011), Porter and Kramer (2011), and Westley et al (2006). Christensen et al (2006) use the term catalytic innovation, which is introduced as a new way of meeting needs of underrepresented societal groups. Organizations, in general, tend to have control over their existing capabilities and resources and maintain the status quo. However, there are some other ways of providing services to a large population as observed in education, health, and other related sectors. To illustrate, community colleges are educational programmes providing lower cost options to four-year degree programmes. Moreover, there are some alternative credit-lending institutions willing to provide credit to people who do not have the assets required to launch a new business. All these products and services are included in the definition of catalytic innovation. In a similar vein, Porter and Kramer (2011) discuss capitalism and its value creation rationale with emphasis on its constraints. Accordingly, value creation activities are narrowly defined, focusing on short-term financial performance that does not provide sustainable gains when societal needs are not met.

The current situation of value creation activities needs further consideration to fulfil societal needs and cope with challenges. It is different from social responsibility or philanthropy, but rather a new way of achieving economic success by putting externalities at the center. There are various issues that the firm needs to consider throughout its production processes, such as environmental impact, energy use, water use, employee health, worker safety, employee skills, supplier access, and viability. Further, Kania and Kramer (2011) focus on the issue of creating collective impact in collaboration with different actors to meet societal needs. The success factors of the system are based on sharing a common agenda, using the same measurement system, following common standards to collect data at the community level, conducting complementary activities, continuous communication among partners, and presence of supporting organizations.

Theme 6- Formations of inter-organizational collaborations

This cluster is shown in light blue and consists of 13 papers. The main papers having the highest citations, links, and total link strength in this cluster include Austin and Seitanidi (2012a), Gray (1989), Austin and Seitanidi (2012b), Ring and van de Ven (1994), Selsky and Parker (2005), and Waddock and Post (1991). These papers focus on different formations of inter-organizational relations. Selsky and Parker (2005) and Austin and Seitanidi (2012a) discuss different types of inter-organizational relations such as strategic alliances, partnerships, joint ventures, franchises, research consortia, and various forms of network organizations with special emphasis on the development process of collaboration. They analyze this process through dynamic relations among negotiations, commitments, assessments, and executions. All the trust and risk issues are discussed in the negotiation process and the output of this stage affects commitments to future plans and the role of interaction at the execution stage. All these processes are assessed in terms of efficiency and equity conditions.

Selsky and Parker (2005) discuss project-based cross-sector partnerships applying two platforms, such as resource dependency and social issues. As for the first one, organizations need to collaborate with partners having complementary resources and skills. In a similar vein, Austin and Seitanidi (2012a;b) use a collaborative value creation framework and evaluate the success of value creation activities at different levels including type of activity, actors, and time period. These papers use the same framework as observed in collaboration on technological innovation activities for choosing the right partners. This process follows steps including the definition of the (social) problem, identification of required resources to achieve a common goal, and determination of partners' contributions to the final outcome. Additionally, identification of partners' motivations and their relations in the past helps actors build trust through collaboration. Likewise, Waddock and Post (1991) touch upon a new form of collaboration called social partnership as a symbol of collective action, and introduce a sound

typology to reveal its dynamic nature and uniqueness. Unlike previous typologies, they apply an integrated framework including mechanisms of collaboration and exchange through which social partnerships reduce the costs of the transaction and strategic dependencies.

Burt (2004) and Granovetter (1985) are two methodological papers cited in this cluster. Burt (2004), with his well-known paper, "Structural Holes and Good Ideas," mentions the institution of a brokerage connecting different actors, and brokers' strategic roles in the creation of social capital. Elsewhere, Granovetter (1985) discusses the problem of embeddedness in relation to economic action and social structure, and argues that economic behavior is embedded in social relations. In this cluster, papers on different forms of inter-organizational collaborations heavily use the assumptions of social network theory with special emphasis on structural holes as connectors and behavioral factors embedded in the society.

As far as the co-citation network map of sources is considered, we obtain 4 clusters (see Figure 4). The first cluster shown in red includes the journals *Organization Science*, *Journal of Business Ethics*, *Academy Management Journal*, *Academy Management Review*, *Organization Studies*, and *Journal of Business Venturing*. This cluster has close links with the blue cluster (*Non-Profit Voluntary Sector Quarterly*) and yellow cluster (*Strategic Management Journal*). While these three clusters seem connected to each other, the green cluster, with journals publishing papers on grassroots innovation (*Research Policy*, *Urban Studies*, *Ecological Sociology*, *Technological Forecasting and Social Change*, *Sociology Ruralis*, *Environment and Planning*), is fragmented.

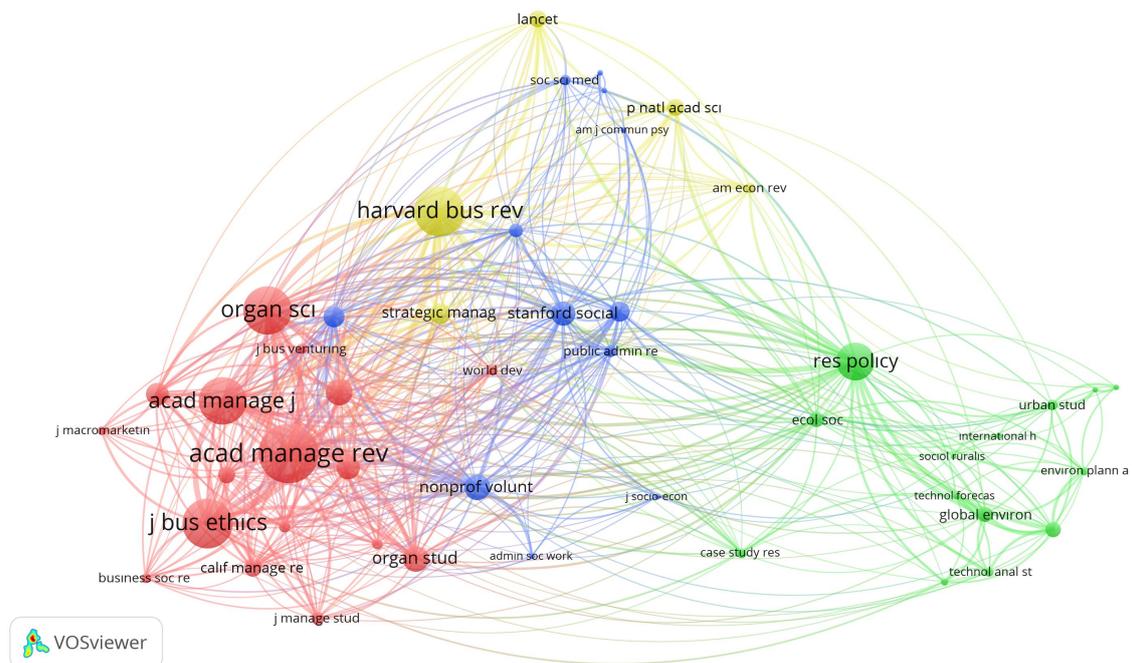


Figure 4. Co-citation network of sources

Figure 5 demonstrates the geographical distribution of the citation links among the sources of the main papers during the years 2011 to 2015. Initial papers on collaboration in social innovation belong to Canada. These studies move to England towards 2013. In later years, studies on collaboration in social innovation concentrated in European countries such as Spain, Sweden, Austria, and Australia.

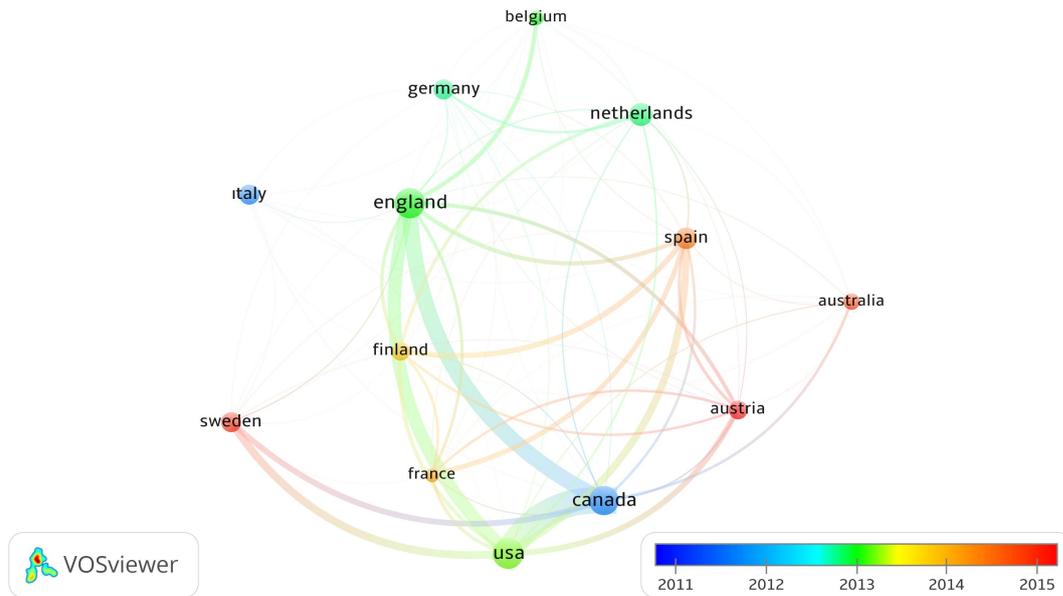


Figure 5. Distribution of most cited journals in years between 2011 and 2015

4. Conclusion and discussion

In this study, six types of clusters are identified based on co-citation analysis. The main themes for each cluster are *cross-sector partnerships*, *innovation studies*, *the definition of social innovation*, *transition studies*, *social entrepreneurship*, and *types of inter-organizational relations*, respectively. According to the results, these six clusters are connected to each other except for the *transition studies* cluster including papers on grassroots, which is located differently on the map. In other words, articles studying social innovation in the context of grassroots are less connected to articles of other clusters. This result implies that transition studies could transform into a diverse and autonomous discipline in the future. As far as the remaining clusters are concerned, the first cluster, red, is connected to the light blue cluster. Selsky and Parker (2005) on project-based partnerships as a connector is linked to almost all papers in the first cluster. In other words, these two clusters are intertwined.

The reason why these two clusters are so close is that both clusters focus on collaboration types. While cross-sector partnerships are the focus for the first one (Austin and Seitanidi, 2012a), Selsky and Parker (2005) deal with project-based partnerships. Further, Cluster 2 on the definition of social innovation and Cluster 3 on social entrepreneurship are also connected to each other. The closeness of these clusters stems from similarities in topics. This result is in line with the findings of Tracey and Stott (2017), which use the term social entrepreneurship to explain social innovation typology. Accordingly, the term social entrepreneur refers to a person whose main goal is to resolve social problems regardless of their identity. In other words, regardless of whether they are profit seekers or actors in the non-profit community, social entrepreneurs are included in social innovation typology.

The green cluster including studies on the definition of social innovation and the blue cluster on innovation studies are closely linked to each other. As mentioned by the two papers by Christensen et al (2006) and Porter and Kramer (2011), the outdated definition of innovation with a special emphasis on short-term value creation takes on a new meaning, which touches upon the environmental effects of production, energy and water use, and health conditions of workers.

The main implication of this study is that literature on collaboration in social innovation is not fragmented, contrary to the studies treating it that way (Cajaiba-Santana, 2014; Dawson and Daniel, 2010; Pol and Ville, 2009). Based on the results of this study, it is rather integrated. However, the literature on transition studies has the potential to become a distinctive research area. As for the remaining clusters, themes of social innovation, social entrepreneurship, cross-sector partnerships, and inter-organizational relations are intertwined (e.g., key papers playing brokerage roles are Phills et al (2008) in the green cluster; Mulgan (2006) in the purple cluster; Selsky (2005) in the light blue cluster; and Austin (2006) in the red cluster).

The second implication is that there has not been a systematic framework that enables researchers to measure social innovation. Further, existing literature highlights that social innovations differ from technological innovations in terms of their motives. Accordingly, social innovations are carried out to satisfy societal needs, while the other is profit-oriented (Howaldt, 2010; Le Ber and Branzei, 2010, Phills et al., 2008, Pol and Ville, 2009). However, these studies remain insufficient to reveal other critical differences between social innovation and technological innovations. In these articles, a similar framework including resource complementarity and organizational fit as observed in technological innovation is applied to explain the dynamics and nature of social innovation activities. The measurement problem in the context social innovation studies, therefore, could be eliminated by developing comprehensive methods including both quantitative and qualitative techniques. Although studies in social innovation predominantly apply case study analysis, network approach, and grounded theory, collecting survey data at the local, regional, and national level will enable social innovation researchers to conduct quantitative analysis and reveal cross-country variations. As the number of studies in collaborations in social innovation increases, changes in research streams could be observed throughout the years.

Secondly, as an emerging field of study, social innovation still lacks a systematic, conceptual framework that clarifies differences between social innovation and technological innovation. Based on the results of this study, the most important point that makes social innovation different from technological innovation is the goal, while tools and processes are similar.

Thirdly, the definition of the field is still in progress. Although one cluster is assigned to the definition of social innovation, we observe that there are papers dealing with the definition of social innovation (e.g., Mulgan, 2006; Mulgan et al, 2007) in other clusters. Further, social entrepreneurship and social innovation are twin fields due to the fact that almost all clusters are connected to each other except for one. The social innovation field, then, is an interconnected system of relations, rather than a fragmented structure.

Through examining collaborations in the field of social innovation, this study provides a comprehensive perspective using co-citation analysis. However, this study has some limitations that require further consideration in future studies. Firstly, the number of articles dealing with collaborations in social innovation is limited due to the newness of the field. Secondly, complementary analysis such as bibliographic coupling (based on common references at least between two papers) could not be conducted. Thus, as the number of papers increases over time, the field of social innovation will elaborate in a broader sense.

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