



Article

# Exploring the Social Innovation Research Field Based on a Comprehensive Bibliometric Analysis

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**Abstract:** Due to the growing academic interest in social innovation, there is a need for a comprehensive bibliometric analysis of the structure and evolution of this research field. So far, there have been very few in-depth studies in this area. In addition, the number of publications in this domain grows dynamically year by year. For this reason, it was assumed that the existing research needs expansion and updating. Therefore, this study presents a comprehensive bibliometric analysis aiming to identify research patterns and trends in the scientific literature on social innovation. Descriptive and performance analyses as well as research field mapping based on network analyses were performed. The most productive authors, sources, academic organizations, and countries in the social innovation literature were indicated. Moreover, the most influential authors and publications in the analyzed research field were determined. Furthermore, the evolution of social innovation research and the scientific collaboration in this area were shown and characterized. The analysis results were intended to show academics and practitioners an up-to-date, comprehensive picture of the multidisciplinary and multifaceted phenomenon of the research on social innovation.



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**Keywords:** social innovation; bibliometric analysis; descriptive and performance analysis; research field mapping; network analysis

## 1. Introduction

The concept of social innovation has gained increased attention among researchers, policymakers, and practitioners in recent decades. It was introduced as an analytical concept by the academic community and has spread as a normative notion powered by development and innovation policies [1]. However, this is not a recent phenomenon. According to Drucker, ‘social innovation goes back almost two hundred years’ [2]. In fact, it was mentioned in academic publications at the beginning of the 20th century, e.g., [3–5]. This concept was originally concerned with social relations and structural transformations of society [6]. Nevertheless, according to Godin, ‘social innovation acquired an autonomous (conceptual) status’ as a new distinct subfield only in the twenty-first century [7]. Despite the efforts made in recent years to clarify the meaning of this term, it is still rather ambiguous [8]. Furthermore, it has been described as a buzzword [9] or a quasi-concept [10], and its usefulness has even been questioned [11]. Social innovation can be characterized from different perspectives, research fields, and levels of analysis. Moreover, it has different meanings across various disciplines, cultures, sectors, and countries [1,12,13], which makes it difficult to understand and analyze systematically within an explicitly defined framework [14–16]. It can be treated as a separate category of innovation (i.e., based on differences between social innovation and technological innovation) [17] and as a new innovation paradigm [18].

Moulaert et al. identified three interconnected dimensions of social innovation: (1) satisfaction of human needs that are not currently satisfied, (2) changes in social relations, and (3) increasing the socio-political capability and access to resources [19]. According to

Mumford, ‘social innovation ( . . . ) refers to the generation and implementation of new ideas about how people should organize interpersonal activities, or social interactions, to meet one or more common goals’ [20]. Mulgan et al. emphasized in this concept ‘innovative activities and services that are motivated by the goal of meeting a social need and that are predominantly diffused through organizations whose primary purposes are social’ [21]. The World Economic Forum defined social innovation as ‘the application of innovative, practical, sustainable, market-based approaches to benefit society in general, and low-income or underserved populations in particular’ [22]. It can be described as ‘the entire process by which new responses to social needs are developed in order to deliver better social outcomes’ [23]. This means that it occurs to meet human and societal needs (i.e., as opposed to business innovation driven by market and consumer needs), and its primary concern is generating value rather than wealth [24,25]. Therefore, this process embraces social demand, a societal challenge perspective, and systemic change focus. This concerns a wide range of activities from grassroots innovations, through novel products and services offered by private, public, or third sector organizations, to fundamental changes in institutional frameworks and social structures [8]. Hamalainen and Heiskala claim that ‘social innovations are changes in the cultural, normative or regulative structures ( . . . ) of society which enhance its collective power resources and improve its economic and social performance’ [26]. In a broader sense, ‘social innovations are new solutions (products, services, models, markets, processes, etc.) that simultaneously meet a social need (more effectively than existing solutions) and lead to new or improved capabilities and relationships and better use of assets and resources’ [13].

There are various perspectives of social innovation conceptualization. For example, the sociological perspective of this term emphasizes the role of social innovation practices and processes and the way they are combined and configured in informal and formal networks to create and implement social change [27]. Considering social innovation as a set of new social practices, Cajaiba-Santana distinguished the role of ‘collective, intentional, and goal-oriented actions aimed at prompting social change through the reconfiguration of how social goals are accomplished’ [28]. Furthermore, analyzing social innovation as a learning-based process, Edwards-Schachter and Wallace put emphasis on social interactions among various actors, the institutionalization of social practices, and a variety of social practices at different stages of innovation development [1]. On the other hand, the economic perspective of social innovation is based on distinguishing this concept from business innovation. In this line, ‘development and application of new ideas to solve problems and improve social conditions’ [29], and ‘new ideas that have the potential to improve either the quality or the quantity of life’ [9] were emphasized. There are also definitions of social innovation that combine its sociological and economic perspective [30].

It should be emphasized that these are only a few approaches aiming to define the social innovation term. For example, specific characteristics of this concept can be noticed in recent years, such as focusing on social sustainability [31]. In addition, hybrid forms of the concept have emerged, e.g., corporate social innovation [32], digital social innovation [33], or open social innovation [34].

The characterization and conceptualization of social innovation concern various approaches and disciplines. Moulart et al. distinguished the following main strands of the literature on social innovation: management science, arts and creativity, territorial or regional development, political governance, and the multidisciplinary approach [19]. Van der Have and Rubalcaba suggested that the social innovation research field embraced such intellectual areas as community psychology, creativity research, social and societal challenges, and local development [8]. Indeed, the disciplines and the research areas comprising the main tenets of the social innovation literature include: psychology [35–37], sociology [18,38,39], public policy and governance [40–45], local development [19,46,47], smart and sustainable cities [14,48–51], and business economics and management, in particular, social entrepreneurship [52–62], intrapreneurship [56,63], corporate social innovation [32,64–66], business ethics and corporate social responsibility [20,67–70], sustainabil-

ity [31,71] and sustainable consumption [72], as well as open social innovation [34,73–76] or social open innovation [77–81].

The literature review indicated that there is no commonly accepted definition of social innovation. In general, this term means novel solutions that meet a social need more effectively and efficiently than existing ones. It is also conceived as a complex process or change to answer societal challenges and to solve social problems. However, the diversity of definitions in this area proved the concept complexity and multifaceted nature. This leads to inconsistency and ambiguity in its understanding. This also means that the analyzed research field is fragmented and conceptualized by different approaches and various disciplines [8]. Yet, this situation does not inevitably have to be viewed as negative because it creates space for varied interpretations and more extensive analyses [13,14].

The growing academic interest in social innovation also means that there is a need for a comprehensive bibliometric analysis of the structure and evolution of the social innovation research field. So far, there have been very few studies presenting the results of bibliometric analyses in this area. However, it should be noted that some of these publications contain a systematic review with a descriptive (quantitative) bibliometric analysis showing only general characteristics of the social innovation literature, e.g., [82–84]. In some studies, bibliometric analyses were performed for a limited number of publications due to the selection of publications from only one research domain [85] or the selection of publications containing the term social innovation only in the title [86]. Furthermore, the purpose of some analyses was to explore relationships between social innovation and other terms, such as: sustainable development [87], entrepreneurship [88–90], non-profit organization [91] or energy governance and transmission [92], which undoubtedly influenced the selection of the analyzed publications and the conclusions drawn on their basis. Another important issue is the fact that a significant part of recent publications presenting the results of descriptive bibliometric analyses and network analyses in the field of social innovation is based on publications published until 2018 [8,93–96]. Even the latest bibliometric publication in this area [97] included publications that appeared before the end of 2019. In addition, the publications under consideration were limited only to papers, and the scope of the analysis was relatively limited.

Taking into account the above-mentioned issues, as well as the fact that the number of publications in the field of social innovation grows dynamically year by year, it was assumed that the existing research within this area needed expansion and updating. Therefore, the main aim of this comprehensive, longitudinal and up-to-date bibliometric analysis based on an extensive research sample was to identify research patterns and trends in the scientific literature on social innovation. In particular, the analysis was intended to answer the following research questions:

- What are the most productive authors, sources, organizations, and countries in the social innovation literature?
- What are the most influential publications in the analyzed research field?
- How are the social innovation publications clustered?
- How do the social innovation literature themes evolve?
- What types of scientific collaboration are there in the research on social innovation?

The remainder of this paper is organized as follows. Section 2 describes the research methodology. The results and discussion of descriptive and network bibliometric analyses are presented in Section 3. Finally, Section 4 includes concluding remarks and limitations of this study.

## 2. Materials and Methods

To identify research patterns and the latest trends in scientific publications regarding social innovation, the bibliometric analysis was performed. It is a popular method of exploring and analyzing large amounts of scientific data that enables a comprehensive review of the literature in a selected field, identifying knowledge gaps, generating new research ideas, and positioning the intended contribution of scientists to this field [98,99].

The bibliometric analysis presented in this article was carried out according to the following phases:

- Phase 1: Study design, comprising the following steps:
  - 1.1. Selection of search words.
  - 1.2. Selection of database.
  - 1.3. Selection of search fields.
  - 1.4. Selection of subject area.
  - 1.5. Selection of the analysis period.
  - 1.6. Selection of techniques and software used for bibliometric analysis.
- Phase 2: Data collection (preparation of a sample of articles), containing the following steps:
  - 2.1. Collecting data from selected scientific database.
  - 2.2. Preliminary screening of the collected data.
  - 2.3. Detailed screening of the collected data.
  - 2.4. Defining the final list of publications and downloading data in CSV Excel format for subsequent bibliometric analysis.
- Phase 3: Bibliometric analysis of the collected data, including the two steps:
  - 3.1. Descriptive and performance analysis of the collected data.
  - 3.2. Research field mapping based on network analyses of the collected data.
- Phase 4: Presentation and discussion of the results and drawing conclusions.

#### Phase 1

In the first phase of the study, the criteria for selecting the publications analyzed in the further part of the research were defined. It was decided that the searched keyword would be a combination of the two words: ‘innovation’ and ‘social’ written together in quotation marks as ‘social innovation’. Such a selection of search words allowed to exclude from the list of publications those publications that refer to the concept of innovation in general way, and also allowed to narrow down the list only to publications on social innovations. The research was based on publications collected in the Scopus database, which is one of the largest abstracts and citations databases of peer-reviewed literature. Moreover, this database was selected because it allows exporting the largest range of data, which can be then used in bibliometric analysis.

The term ‘social innovation’ was searched in title, abstract and keywords. It was decided that in the initial phase of the research, all types of peer-reviewed publications indexed in Scopus would be included in the research sample, and the decision on which ones to exclude from the final sample would be taken only after their preliminary screening. It was also decided not to limit the subject areas of publication to selected areas because it was recognized that the concept of social innovation is developed in various research areas. Therefore, narrowing the list of publications only to selected subject areas at this stage of research would make it impossible to fully analyze patterns and the latest trends in scientific publications on social innovation.

To show how the approach to the concept of social innovation has changed over the years, no restrictions have been introduced regarding the period of publication of articles. Only after downloading the data, it turned out that the first publication in the field of social innovations appeared in 1966, which resulted in the narrowing of the timespan from 1966 to 2021. It was determined that all publications with the title, keywords, and abstracts in English would be included in the research sample. Therefore, in order to include publications written in languages other than English in the research sample, the list of publications was not initially limited to only English-language publications.

Two bibliometric analysis techniques were selected to identify the emerging trends and collaboration patterns in the field of social innovation: descriptive and performance analysis as well as research field mapping based on network analyzes. The analyses were performed using two software packages dedicated to bibliometric analyzes—Biblioshiny (based on: R version 4.1.1, Bibliometrix package version 3.1.4) and VOSviewer (version 1.6.17). These

programs are frequently used in the literature to describe problems from different research areas. They are effective tools for the description of bibliometric network interrelations, especially in the detection and diagnosis of multi-element structures [100,101]. A summary of the research protocol of the first phase of the study is presented in Table 1.

**Table 1.** Research protocol.

|                                      | Description   |
|--------------------------------------|---|
| Search word                          | Social innovation   |
| Search database                      | The Scopus database   |
| Search fields                        | Titles, abstracts and keywords  |
| Search terms                         | TITLE-ABS-KEY ("Social innovation*")  |
| Type of publications                 | All types of peer-review publications indexed in the Scopus database          |
| Subject areas                        | All subject areas indicated in the Scopus                                     |
| Timespan                             | All years included in the Scopus (up to July 2021)                            |
| Language                             | Publication in all languages  |
| Techniques for bibliometric analysis | Descriptive and performance analysis  |
| Software for bibliometric analysis   | Research field mapping based on network analyzes<br>Biblioshiny and VOSviewer |

#### Phase 2

In the second phase of the study, the required data for bibliometric analysis was collected. The data was retrieved on 30 July 2021 from the Scopus database. A total of 4114 publications that met all the criteria specified in the first phase were found. Then, the collected data were subjected to a preliminary screening, as a result of which duplicate publications, erroneous entries, and publications without an English version of the title, abstract, or keywords were removed from the research sample. For fear of distorting the results of bibliometric analysis, it was decided to exclude from the research sample publications in which the author was undefined and all the following publications: note, erratum, retracted, letter, data paper, conference review, trade journal, and undefined. The preliminary screening allowed to limit the number of publications included in the research sample to be limited to 4009 items.

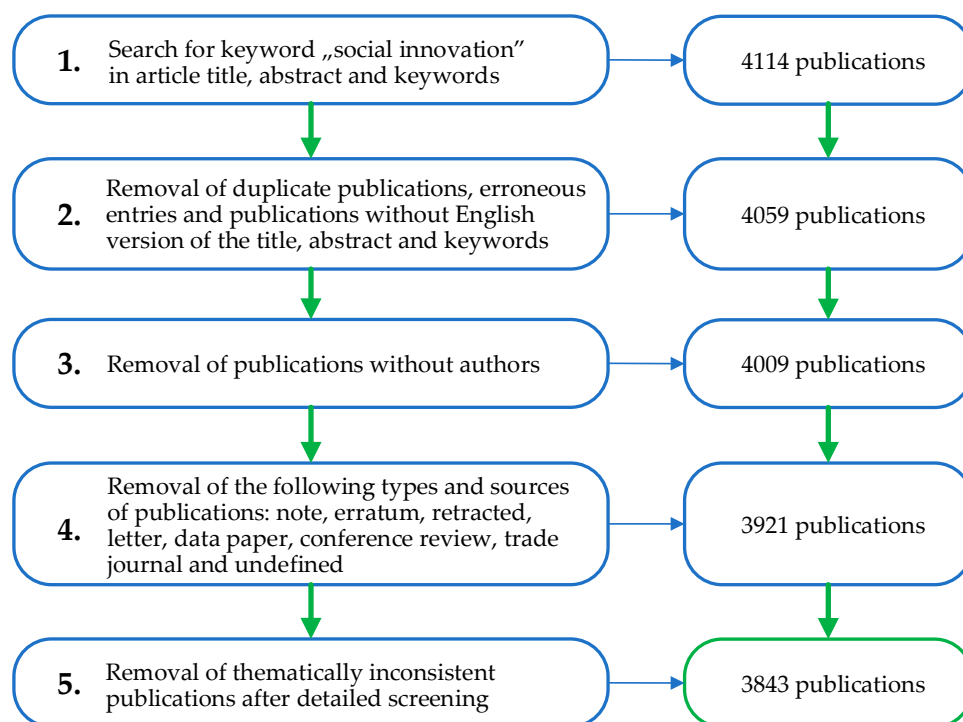
In the next step, a detailed screening of the titles and abstracts of publications was conducted in order to identify publications which, despite the presence of the word 'social innovation' in their title, summary or keywords, were not thematically related to the concept of 'social innovation'. This review was carried out by three independent experts. Each of the experts reviewed all the titles of the collected publications and in a situation where it was not certain that a given article was thematically consistent with the concept of 'social innovation', its keywords, abstract and the entire article were reviewed in detail. As a result of the review, another 78 publications were excluded from the research sample and finally 3843 items remained in it. The procedure for searching and selecting publications is shown in Figure 1, while Table 2 contains the main information about the research sample for which bibliometric analysis was carried out in the further part of the research.

After determining the final number of publications included in the research sample, data in CSV Excel format for bibliometric analysis were downloaded.

#### Phase 3

In the third phase of study, a bibliometric analysis was carried out. This analysis started with the descriptive and performance analysis of collected data. The main subject areas and document types as well as the annual and total number of publications and citations were indicated. Moreover, the most cited publications in this area were characterized. This characteristics included global citations (i.e., total citations that relevant documents received in the Scopus database), local citations (i.e., total citations that relevant documents received from publications covering social innovation literature indexed in the Scopus database), as well as global and local normalized citation scores (i.e., scores calculated by dividing the actual count of citing publications by the expected citation rate for items

with the same year of publication). Furthermore, the most productive authors, sources, organizations and countries in the analyzed scientific field were determined.



**Figure 1.** The procedure for searching and selecting publications.

**Table 2.** The characteristic of final research sample.

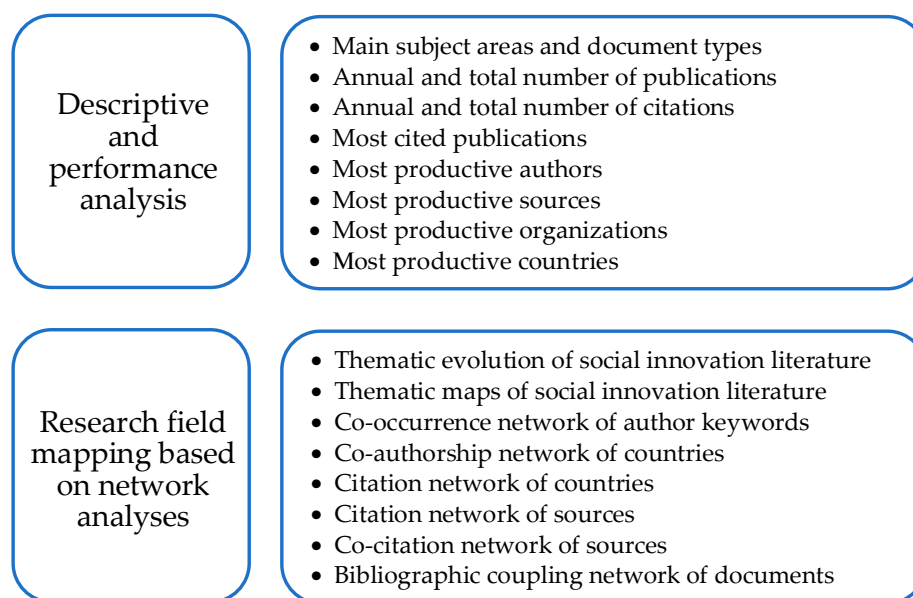
| Description                             | Results   |
|---|-----------|
| Main information                        |           |
| Timespan                                | 1966–2021 |
| Sources                                 | 1710      |
| Documents                               | 3843      |
| Average years for publication           | 4.97      |
| Average citations per document          | 10.24     |
| Average citations per year per document | 1.532     |
| References                              | 166,065   |
| Document contents                       |           |
| Keywords Plus                           | 6253      |
| Author's Keywords                       | 7981      |
| Authors characteristics                 |           |
| Authors                                 | 8007      |
| Authors appearances                     | 10,070    |
| Authors of single-authored documents    | 967       |
| Authors of multi-authored documents     | 7040      |

The collected data were then subjected to scientific mapping to analyze the current and the evolving cognitive and social structures of the social innovation field. The changes were identified using thematic evolution and thematic map analyses in selected periods of time. Thematic evolution presents the main research areas and their evolution using the Sankey diagram. Thematic maps were based on the co-word network analysis and clustering drawing on the methodology proposed by Cobo et al. [102] which distinguishes two dimensions: centrality and density. Centrality measures the degree of interaction of a network with other networks, i.e., the strength of external ties to other themes. It can be understood as a measure of the importance (relevance degree) of a research theme in the development of the entire analyzed scientific field. Density measures the internal strength



of the network, i.e., the strength of internal ties among all keywords describing the research theme. It can be understood as a measure of the development degree of a specific theme. Based on centrality and density metrics, themes are divided into four categories: (1) Motor themes, which are both well-developed and important for the research field structuring; (2) Niche themes, which are specialized, with fairly well-developed internal relationships within a cluster, but with rather weak external relationships; therefore they have only a slight impact on the field of study; (3) Basic themes, which play an important role in the analyzed field of knowledge but are still not developed well enough; (4) Emerging or disappearing themes, which are both marginal and weakly developed [102].

In the next step, the network analyses were performed using the VOSviewer program. The created networks are made of nodes, whose size depends on the number of occurrences of a given element of the network (occurrences or citations), and lines connecting the co-occurring elements. The width of the lines depends on the number of the co-occurrences or co-citations. The elements are grouped into clusters marked with a single color and determined according to the methodology proposed by Waltman, Van Eck, and Noyons [103,104]. The metrics and the techniques used for the bibliometric analysis in this study are shown in Figure 2.



**Figure 2.** Metrics and techniques used for bibliometric analysis.

#### Phase 4

The final phase of the study included presentation, interpretation, and discussion of the obtained results and drawing of conclusions.

### 3. Results and Discussion

#### 3.1. Descriptive and Performance Bibliometric Analysis of Social Innovation Literature

The performed analysis revealed that there were 3843 publications indexed in the Scopus database covering the social innovation research field. These documents comprised 2381 articles (including 104 articles in-press), 629 conference papers, 473 book chapters, 218 reviews, 52 editorials, 89 books, and one short survey. The vast majority of identified publications was written in English (3500 items). Among the publications written in other languages, it is worth mentioning, most of all, documents in Spanish (144), French (63), Italian (57), Russian (31), Portuguese (29), and German (32). Literature on social innovation covered diverse subject areas including, in particular, Social Sciences (2035 items), Business, Management and Accounting (1304), Economics, Econometrics and Finance (748), Computer Science (629), Environmental Science (548), Engineering (461), Arts and Humanities (348), Energy (263), and Decision Sciences (209).

Table 3 presents the main indicators describing publication activity in the social innovation literature included in the Scopus database. These indicators include the annual and the cumulative number of publications (ANP and CNP, respectively), the annual and the cumulative number of global citations that these items have received (AGC and CGC, respectively), as well as the share of the annual number of publications (%TNP) and global citations (%TGC) in the total number of publications and citations respectively.

**Table 3.** The main indicators describing publication activity in the social innovation literature included in the Scopus database.

| Year | ANP | %TNP | CNP | AGC | %TGC  | CGC | Year | ANP | %TNP  | CNP  | AGC  | %TGC  | CGC    |
|------|-----|------|-----|-----|-------|-----|------|-----|-------|------|------|-------|--------|
| 1966 | 1   | 0.03 | 1   | 0   | 0     | 0   | 1995 | 3   | 0.08  | 71   | 28   | 0.07  | 205    |
| 1970 | 1   | 0.03 | 2   | 1   | <0.01 | 1   | 1996 | 5   | 0.13  | 76   | 25   | 0.06  | 230    |
| 1971 | 1   | 0.03 | 3   | 2   | 0.01  | 3   | 1997 | 5   | 0.13  | 81   | 16   | 0.04  | 246    |
| 1972 | 0   | 0    | 3   | 1   | <0.01 | 4   | 1998 | 0   | 0     | 81   | 19   | 0.05  | 265    |
| 1973 | 1   | 0.03 | 4   | 1   | <0.01 | 5   | 1999 | 6   | 0.16  | 87   | 18   | 0.05  | 283    |
| 1974 | 2   | 0.05 | 6   | 1   | <0.01 | 6   | 2000 | 2   | 0.05  | 89   | 30   | 0.08  | 313    |
| 1975 | 0   | 0    | 6   | 1   | <0.01 | 7   | 2001 | 5   | 0.13  | 94   | 31   | 0.08  | 344    |
| 1976 | 1   | 0.03 | 7   | 0   | 0     | 7   | 2002 | 10  | 0.26  | 104  | 25   | 0.06  | 369    |
| 1977 | 2   | 0.05 | 9   | 1   | <0.01 | 8   | 2003 | 19  | 0.49  | 123  | 67   | 0.17  | 436    |
| 1978 | 1   | 0.03 | 10  | 1   | <0.01 | 9   | 2004 | 12  | 0.31  | 135  | 62   | 0.16  | 498    |
| 1979 | 2   | 0.05 | 12  | 2   | 0.01  | 11  | 2005 | 15  | 0.39  | 150  | 88   | 0.22  | 586    |
| 1980 | 2   | 0.05 | 14  | 1   | <0.01 | 12  | 2006 | 19  | 0.49  | 169  | 133  | 0.34  | 719    |
| 1981 | 3   | 0.08 | 17  | 7   | 0.02  | 19  | 2007 | 44  | 1.14  | 213  | 218  | 0.55  | 937    |
| 1982 | 2   | 0.05 | 19  | 8   | 0.02  | 27  | 2008 | 24  | 0.62  | 237  | 246  | 0.62  | 1183   |
| 1983 | 3   | 0.08 | 22  | 8   | 0.02  | 35  | 2009 | 41  | 1.07  | 278  | 330  | 0.84  | 1513   |
| 1984 | 3   | 0.08 | 25  | 18  | 0.05  | 53  | 2010 | 68  | 1.77  | 346  | 428  | 1.09  | 1941   |
| 1985 | 2   | 0.05 | 27  | 11  | 0.03  | 64  | 2011 | 101 | 2.63  | 447  | 523  | 1.33  | 2464   |
| 1986 | 4   | 0.10 | 31  | 8   | 0.02  | 72  | 2012 | 112 | 2.91  | 559  | 856  | 2.17  | 3320   |
| 1987 | 5   | 0.13 | 36  | 12  | 0.03  | 84  | 2013 | 172 | 4.48  | 731  | 938  | 2.38  | 4258   |
| 1988 | 5   | 0.13 | 41  | 9   | 0.02  | 93  | 2014 | 186 | 4.84  | 917  | 1423 | 3.61  | 5681   |
| 1989 | 4   | 0.10 | 45  | 8   | 0.02  | 101 | 2015 | 249 | 6.48  | 1166 | 1854 | 4.70  | 7535   |
| 1990 | 8   | 0.21 | 53  | 13  | 0.03  | 114 | 2016 | 351 | 9.13  | 1517 | 2616 | 6.63  | 10,151 |
| 1991 | 6   | 0.16 | 59  | 12  | 0.03  | 126 | 2017 | 470 | 12.23 | 1987 | 3816 | 9.67  | 13,967 |
| 1992 | 3   | 0.08 | 62  | 17  | 0.04  | 143 | 2018 | 405 | 10.54 | 2392 | 4475 | 11.35 | 18,442 |
| 1993 | 3   | 0.08 | 65  | 16  | 0.04  | 159 | 2019 | 502 | 13.06 | 2894 | 5890 | 14.93 | 24,332 |
| 1994 | 3   | 0.08 | 68  | 18  | 0.05  | 177 | 2020 | 597 | 15.53 | 3491 | 8201 | 20.79 | 32,533 |
|      |     |      |     |     |       |     | 2021 | 352 | 9.16  | 3843 | 6909 | 17.52 | 39,442 |

Note: ANP—Annual number of publications; %TNP—Share of annual number of publications in the total number of publications; CNP—Cumulative number of publications, AGC—Annual number of global citations; %TGC—Share of the annual number of global citations in the total number of global citations; CGC—Cumulative number of global citations.

The analysis results indicate that 60.5% of all publications on social innovation indexed in the Scopus database were published in the period of 2017–2021. Moreover, 53% of all global citations received by publications in this research field were recorded in the period of 2019–2021.

A paper by Garvey and Griffith [105] from 1966 was found as the first publication on the social innovation indexed in the Scopus database. The most cited article in the analyzed research field, with 988 global citations recorded in the Scopus database, was a study by Swyngedouw [41] focused on political governance as the fifth dimension of social innovation. The runner up was research published by Boons and Lüdeke-Freund [106] comprising a review of the literature on business models in the contexts of technological, organizational and social innovation, cited 863 times. A paper by Voorberg et al. [107], presenting a review of co-creation and co-production concepts from the perspective of social innovation, took third place with 659 citations. This paper was characterized by the highest field-weighted citation impact among the most cited works in the analyzed research field. It is worth mentioning that the top three publications on social innovation that received the highest number of local citations included completely different papers. The most local citations were received by the study performed by Pol and Ville [9] discussing the meaning of social innovation based on distinguishing it from business innovation. This paper gained



296 local citations, which accounted for 74.4% of all received global citations. In the second place was a study by Cajaiba-Santana [28], presenting conceptual framework to explore social innovation in the context of social change, with 221 local citations (65.2% of global citations). A paper by Moulaert et al. [19], introducing a debate on the meaning of social innovation in the perspective of social science theory as well as socioeconomic development and local governance, took third place with 206 local citations (56.4% of global citations).

The most cited publications in the social innovation literature indexed in the Scopus database are presented in Table 4.

**Table 4.** Most cited publications in the social innovation literature (based on Scopus database).

| Authors   | Title   | Source Title  | GC  | GC/y  | NGCS  | LC  | LC/y  | NLCS  | LC/GC | FWCI  |
|---|---|---|-----|-------|-------|-----|-------|-------|-------|-------|
| Swyngedouw, E. (2005)   | Governance innovation and the citizen: The Janus face of governance-beyond-the-state  | Urban Studies, 42(11), 1991–2006                                  | 988 | 58.12 | 8.52  | 70  | 4.12  | 2.81  | 7.14  | 13.95 |
| Boons, F., Lüdeke-Freund, F. (2013)                               | Business models for sustainable innovation: State-of-the-art and steps towards a research agenda                              | Journal of Cleaner Production, 45, 9–19                           | 863 | 95.89 | 48.61 | 9   | 1     | 4.56  | 1.05  | 21.87 |
| Voorberg, W.H., Bekkers, V.J.J.M., Tummers, L.G. (2015)           | A Systematic Review of Co-Creation and Co-Production: Embarking on the social innovation journey                              | Public Management Review, 17(9), 1333–1357                        | 659 | 94.14 | 44.57 | 50  | 7.14  | 15.82 | 7.68  | 24.85 |
| Moulaert, F., Sekia, F. (2003)                                    | Territorial innovation models: A critical survey  | Regional Studies 37(3), 289–302                                   | 640 | 33.68 | 12.09 | 39  | 2.05  | 6.74  | 6.11  | 16.22 |
| Dacin, M.T., Dacin, P.A., Tracey, P. (2011)                       | Social entrepreneurship: A critique and future directions   | Organization Science, 22(5), 1203–1213                            | 581 | 52.82 | 19.99 | 64  | 5.82  | 25.06 | 11.03 | 14.04 |
| Ramírez, R. (1999)  | Value co-production: Intellectual origins and implications for practice and research  | Strategic Management Journal, 20(1), 49–65                        | 480 | 20.87 | 3.63  | 10  | 0.43  | 1.58  | 2.08  | 5.59  |
| Seyfang, G., Haxeltine, A. (2012)                                 | Growing grassroots innovations: Exploring the role of community-based initiatives in governing sustainable energy transitions | Environment and Planning C: Government and Policy, 30(3), 381–400 | 460 | 46.00 | 18.08 | 57  | 5.70  | 13.67 | 12.50 | 14.99 |
| Pol, E., Ville, S. (2009)   | Social innovation: Buzz word or enduring term?  | Journal of Socio-Economics, 38(6), 878–885                        | 404 | 31.08 | 9.62  | 296 | 22.77 | 31.23 | 74.37 | 2.59  |
| Moulaert, F., Martinelli, F., Swyngedouw, E., González, S. (2005) | Towards alternative model(s) of local innovation  | Urban Studies, 42(11), 1969–1990                                  | 369 | 21.71 | 3.17  | 206 | 12.12 | 8.26  | 56.44 | 3.35  |
| Cajaiba-Santana, G. (2014)  | Social innovation: Moving the field forward. A conceptual framework   | Technological Forecasting and Social Change, 82(1), 42–51         | 340 | 42.50 | 23.81 | 221 | 27.63 | 71.39 | 65.19 | 15.58 |

Note: GC—Number of global citations; GC/y—Number of global citations per year; NGCS—Normalized global citation score; LC—Number of local citations; LC/y—Number of local citations per year; NLC—Normalized local citation score; LC/GC—LC/GC ratio (%); FWCI—Field-Weighted citation impact.

The analysis results showed that the most productive author with the most frequent contributions to the social innovation literature in the Scopus database was Frank Moulaert, with 26 publications. This scientist may also be assumed as the most influential in the analyzed research field because among the most prolific authors he had the highest number of publications fractionalized, the highest number of global citations and the highest number of global citations per year. Furthermore, two publications of this author received more than 250 citations recorded in the Scopus database. Considering the productivity of authors in the social innovation scientific field, it is also worth mentioning Frances R. Westley, who published 23 works. Moreover, she was the runner-up in terms of the number of publications fractionalized, the number of global citations, and the number of global citations per year. Interestingly enough, one publication of this researcher received more than 250 citations. The most productive authors in the social innovation literature indexed in the Scopus database are presented in Table 5.

**Table 5.** Most productive authors in the social innovation literature indexed in the Scopus database.

|                         | NP | PF    | GC   | GC/y  | Publications with Citations $\geq$ |     |    |    |    |
|-------------------------|----|-------|------|-------|------------------------------------|-----|----|----|----|
|                         |    |       |      |       | 250                                | 100 | 50 | 20 | 1  |
| Frank Moulaert          | 26 | 11.03 | 1987 | 76.43 | 2                                  | 6   | 8  | 11 | 26 |
| Frances R. Westley      | 23 | 8.43  | 1417 | 61.61 | 1                                  | 4   | 7  | 13 | 22 |
| Gianluca Carlo Misuraca | 14 | 5.08  | 122  | 8.71  | 0                                  | 1   | 1  | 1  | 7  |
| Juan Luís Klein         | 13 | 5.14  | 103  | 7.92  | 0                                  | 0   | 0  | 2  | 9  |
| Jürgen Howaldt          | 13 | 4.75  | 238  | 18.31 | 0                                  | 0   | 1  | 5  | 12 |
| Maria Nijnik            | 13 | 1.72  | 138  | 10.62 | 0                                  | 0   | 0  | 3  | 13 |
| Bastian Pelka           | 13 | 4.92  | 34   | 2.62  | 0                                  | 0   | 0  | 0  | 10 |
| Christoph Kaletka       | 12 | 4.12  | 68   | 5.67  | 0                                  | 0   | 0  | 1  | 11 |
| Rafael Ziegler          | 12 | 8.42  | 146  | 12.17 | 0                                  | 0   | 0  | 3  | 12 |
| Ezio Manzini            | 11 | 6.33  | 236  | 21.45 | 0                                  | 2   | 2  | 2  | 8  |

Note: NP—Number of publications; PF—Number of publications fractionalized (based on frequency distribution of authors); GC—Number of global citations; GC/y—Number of global citations per year.

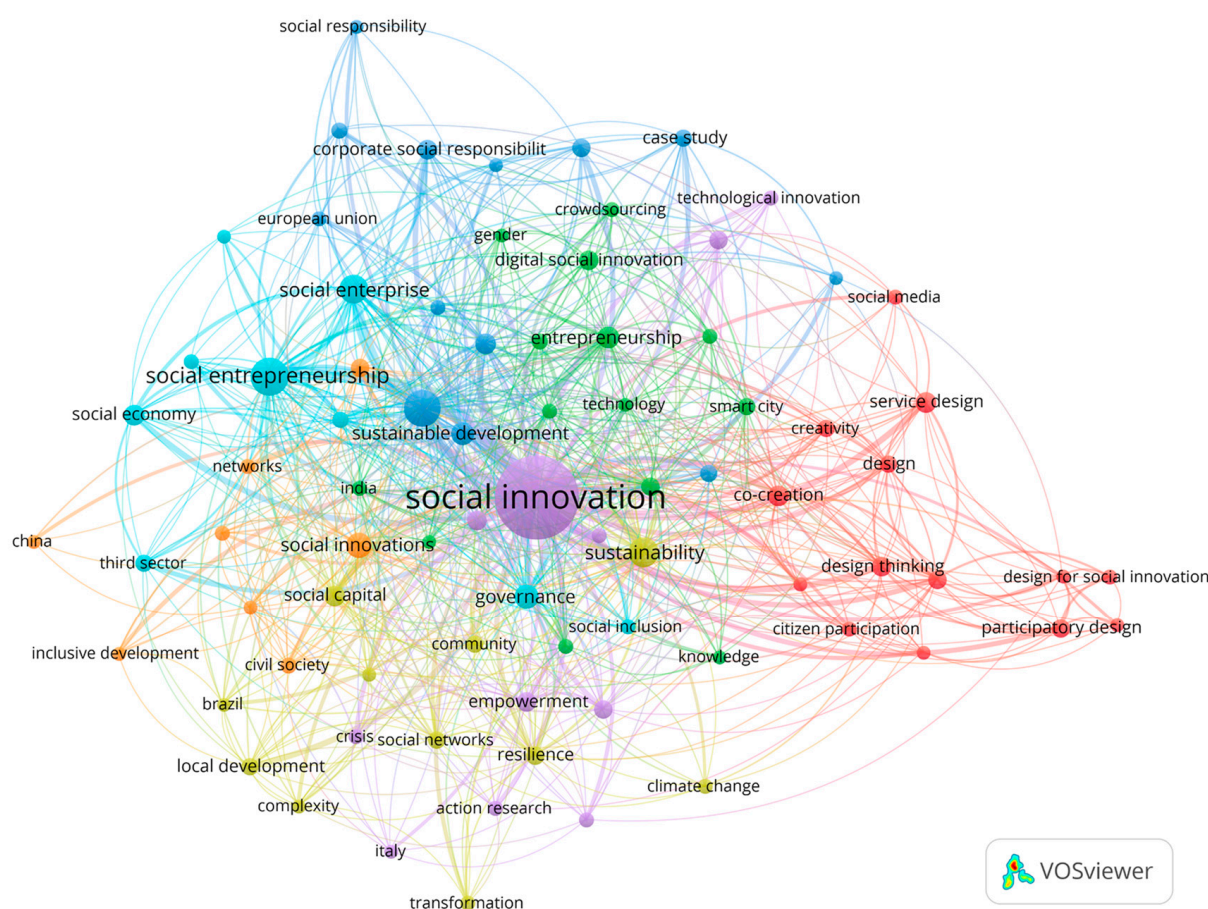
Most Scopus-indexed publications on the social innovation appeared in Sustainability (128 records), Lecture Notes in Computer Science (85), Design Journal (41), Journal of Social Entrepreneurship (40), and ACM International Conference Proceeding Series (39). The most active organizations in the analyzed research field were Politecnico di Milan (82 Scopus-indexed publications), KU Leuven (44), Technische Universität Dortmund (43), University of Waterloo (41), and Université du Québec à Montréal (37). In turn, the most prolific countries were United Kingdom (529 Scopus-indexed publications), Italy (504), United States (456), Spain (341), and Germany (311). The most productive sources, organizations, and countries in the social innovation literature indexed in the Scopus database are presented in Tables A1 and A2 in Appendix A.

### 3.2. Research Field Mapping of Social Innovation Literature based on Network Analyzes

#### 3.2.1. Word, Keyword and Co-Keyword Analyzes

The identification of the main areas of research in the field of social innovation literature began with the analysis of the structure of the co-occurrence network of author keywords. In order to exclude less important topics from the analysis and at the same time obtain a clearer structure of explored concepts, only the keywords that appeared at least 15 times were taken into consideration. Hence, 80 most important keywords thus emerged from the 7983 used by the authors, and formed the network shown in Figure 3. The size of the circles is proportional to the number of occurrences of a given keyword in the social innovation literature. A larger circle in the network means that the keyword was selected by the authors a greater number of times. The lines connecting the keywords illustrate the co-occurrences of the keywords in publications, and the width of the lines indicates the number of these co-occurrences (the larger the width, the greater the number). The colors indicate the affiliation of words to particular clusters. The analysis revealed seven clusters representing the main sub-areas of research in the social innovation literature. Table A3 presents the most important parameters of the 10 keywords with the highest total link strength.

As indicated by the analysis results, the words characterized by the highest total link strength were: social innovation, social entrepreneurship, innovation, social enterprise, sustainability, governance, entrepreneurship, sustainable development, social capital, and social change.



**Figure 3.** Co-occurrence network of authors' keywords (min. number of occurrences: 15) in the social innovation literature.

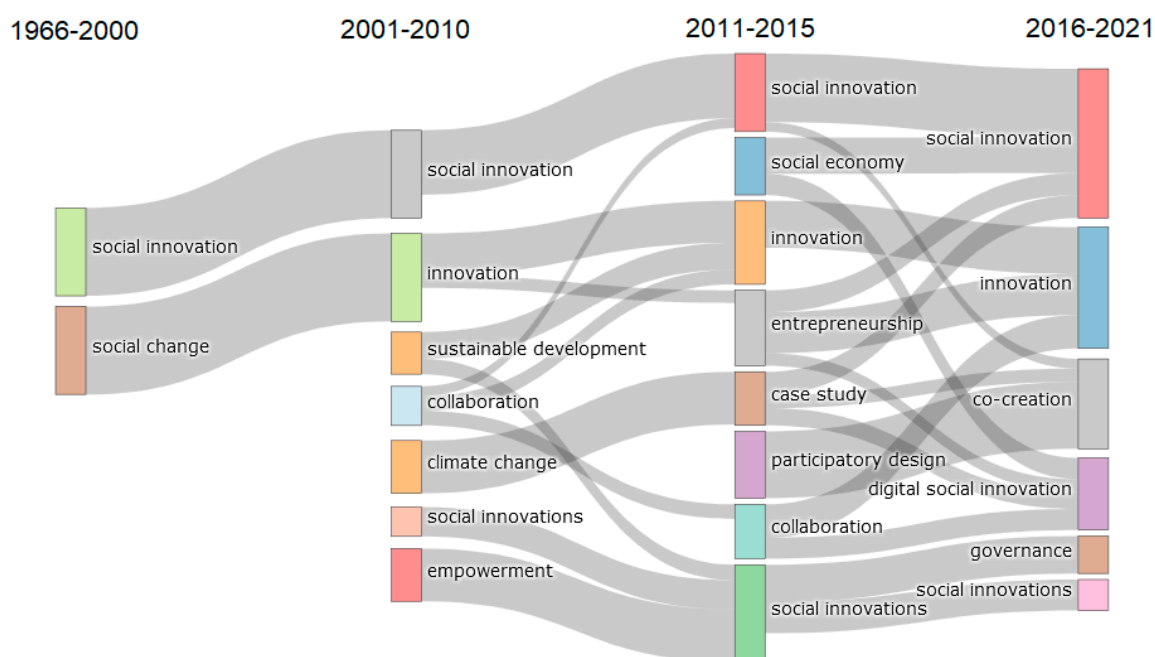
The individual clusters representing the research sub-areas in the social innovation literature included topics such as:

- Violet cluster: social innovation, participation, empowerment, rural development, open innovation, technological innovation, covid-19, action research, crisis, urban regeneration,
- Red cluster: co-design, co-creation, design thinking, service design, design, participatory design, creativity, social design, co-production, community participation, design education, social media, design for social innovation,
- Green cluster: entrepreneurship, education, smart city, social services, ICT, crowdsourcing, digital social innovation, technology, development, gender, inclusion, institutions, knowledge,
- Dark blue cluster: innovation, sustainable development, social change, corporate social responsibility, higher education, case study, smart cities, social enterprises, leadership, community development, corporate social innovation, social responsibility,
- Yellow cluster: sustainability, social capital, resilience, local development, community, social networks, complexity, social movements, transformation, climate change,
- Light blue cluster: social entrepreneurship, social enterprise, governance, social economy, social impact, third sector, public policy, social inclusion, social value,
- Orange cluster: social innovations, collaboration, networks, civil society, inclusive development, social work, social network analysis.

The diversity of the authors' keywords proves the multidimensional character of the social innovation concept.

The next step was the analysis of the main thematic evolution representing the main research sub-areas in the social innovation literature. The analysis was conducted for four time spans: 1966–2000; 2001–2010; 2011–2015; 2016–2021. The differences between

the number of years included in the spans were the effect of a significant increase in the number of publications in recent years. The obtained results are presented in Figure 4.



**Figure 4.** Thematic evolution of the social innovation literature.

Figure 4 shows that, in the initial period of the social innovation concept exploration, research was mainly focused on two sub-areas: social innovation and social change. In the second period (2001–2010), some topics evolved (social change into innovation) and new ones appeared: sustainable development, collaboration, empowerment, climate change. In the next period (2011–2015), additional sub-areas were developed, related to concepts such as: entrepreneurship, participatory design, social economy, case study. Current research focused on topics such as: social innovation/s, innovation, co-creation, digital social innovation, governance. It should be noted that over time the topics related to climate change, participatory design, collaboration, empowerment, or entrepreneurship have ceased to be included in the key issues of the social innovation literature.

In the next stage of the research, an in-depth analysis of the evolution of the thematic maps was conducted dividing the studied topics into four categories of themes: motor, basic, niche, emerging, or declining (Figure 5). Table A4 presents the most important characteristics of identified clusters. As indicated by the analysis results:

- In the 1966–2000 period, two significant themes were identified in the 87 publications on social innovation that appeared in those years: social innovation, being the motor theme at the time, and social change, being the niche theme.
- In the 2001–2010 period, 11 themes were identified in the 257 papers on social innovation published in those years. It was revealed that 5 of them belonged to the motor themes: (1) empowerment, citizenship; (2) social innovations, adaptability, behavior; (3) sustainable development, governance and co-design; (4) climate change, management; (5) collaboration, sustainability, adaptive cycle. Moreover, five sub-areas were indicated as the basic themes, and they were represented by concepts such as: (1) innovation, leadership, social change; (2) social innovation, corporate social responsibility; (3) emergent change, planned change; (4) employment, international comparison; (5) social value creation. Furthermore, one emerging or declining theme was identified: participatory research.
- In the 2011–2015 period, nine themes were identified in the 820 publications on social innovation published in those years. The ones indicated as the niche themes were



related to concepts such as: (1) digital inclusion, diversity, collective intelligence; (2) collaboration, social services; (3) participatory design, design education, co-design. The declining theme was stimulated by the area related to concepts such as: (1) entrepreneurship, social change, crowdsourcing.

- In the 2016–2021 period, seven themes were identified in the 2679 publications on social innovation published in those years. The two basic themes in those years were related to the following concepts: (1) governance, rural development, participation; (2) social innovation, social entrepreneurship, social enterprise. The motor themes were related to: (1) digital social innovation, education, smart city; (2) innovation sustainability, sustainable development. The following were indicated as the niche themes: (1) energy transition, transformation; (2) social innovations, institutions, civil society. In addition, one sub-area focusing on co-creation, design thinking, and co-design was classed as the emerging or declining theme.

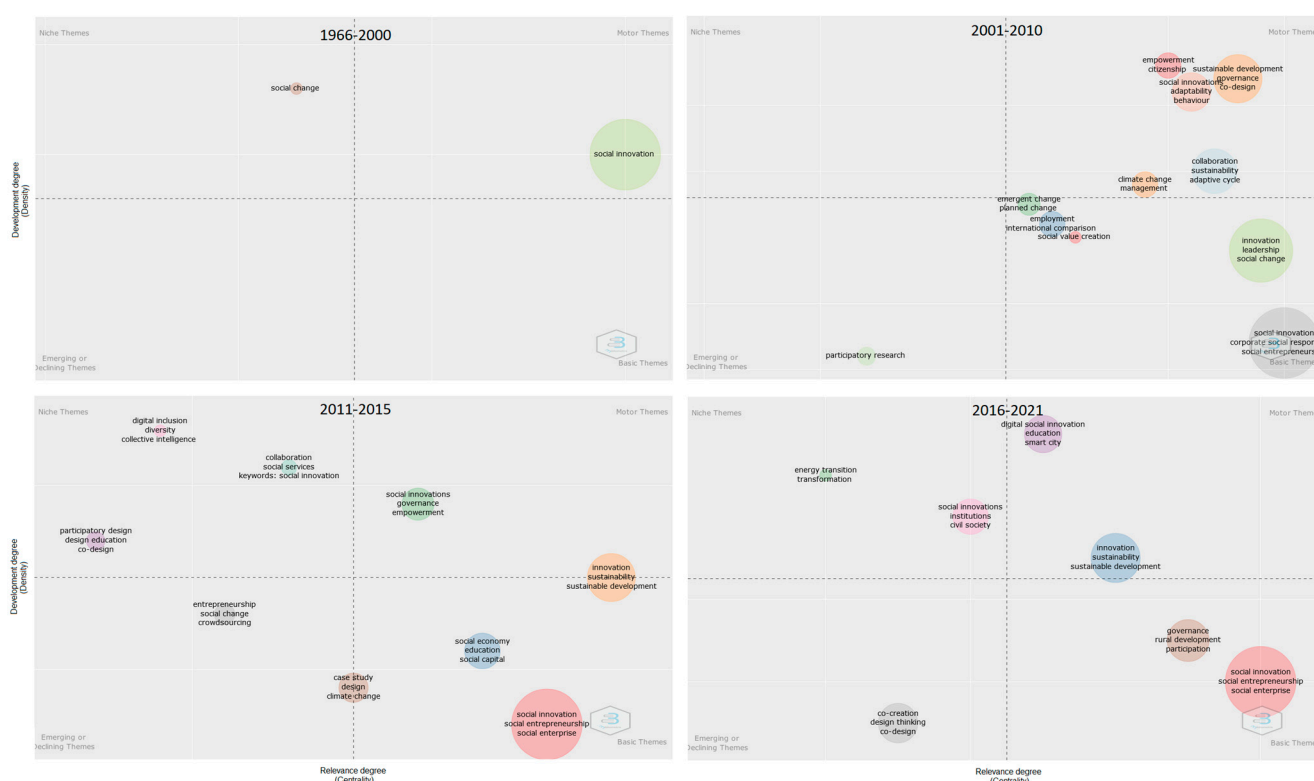


Figure 5. Thematic maps of the social innovation literature.

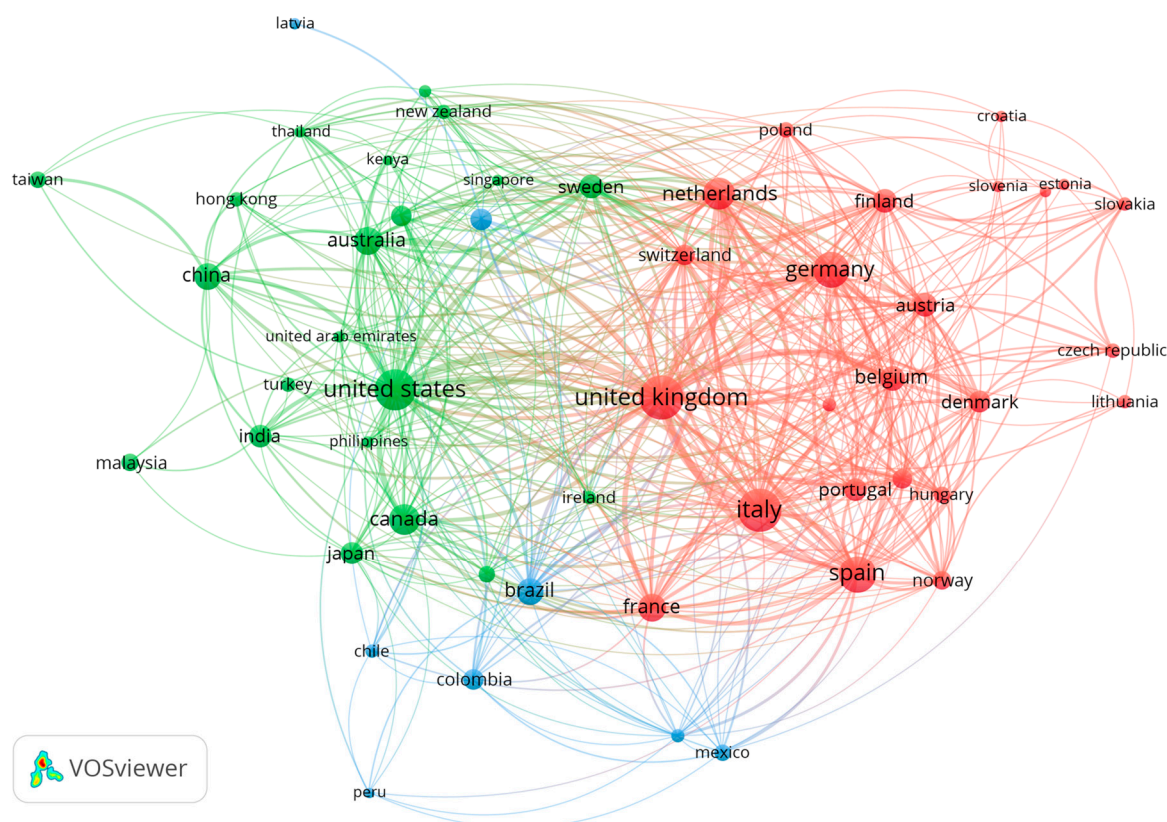
It is worth mentioning that at present the motor themes reveal connections with current global challenges. For this reason, an increase has been observed in recent years in the significance of concepts such as digital social innovations, the smart city, or sustainable development.

### 3.2.2. Mapping the Scientific Collaboration

The analysis of scientific cooperation started with the co-authorship network of countries. It presented the form of collaboration among authors from various countries who published their findings from research on social innovation. The network is shown in Figure 6. For clarity and to identify the most important entities and the relationships between them, the number of countries presented in the network was reduced to those that were represented at least 10 times. The size of the circles is proportional to the number of publications in the social innovation literature. The lines indicate the co-occurrence in publications of authors from the two countries connected by the line. The wider the line, the higher the number of such publications. The resulting network makes it possible to

determine the existing research hotspots. The identified clusters represent the collaboration camps existing worldwide. The countries with the highest total link strength are listed in Table A5. As indicated by the analysis results:

- The authors of the publications on social innovation came from a total of 170 countries, 53 of which were represented at least 10 times.
- The countries with the highest total link strength were: the United Kingdom, Italy, the United States, Spain, the Netherlands.
- Switzerland showed a high total link strength despite relatively few publications.
- There were three collaboration communities, whose most important representatives (with the highest total link strength) were:
  - Red cluster: the United Kingdom, Italy, Spain, the Netherlands, Germany, France, Switzerland, Belgium, Austria,
  - Green cluster: the United States, Australia, Sweden, Canada, China, India, South Africa, Japan, Thailand, New Zealand,
  - Blue cluster: Brazil, Argentina, Colombia, the Russian Federation, Mexico, Chile, Peru, Latvia.



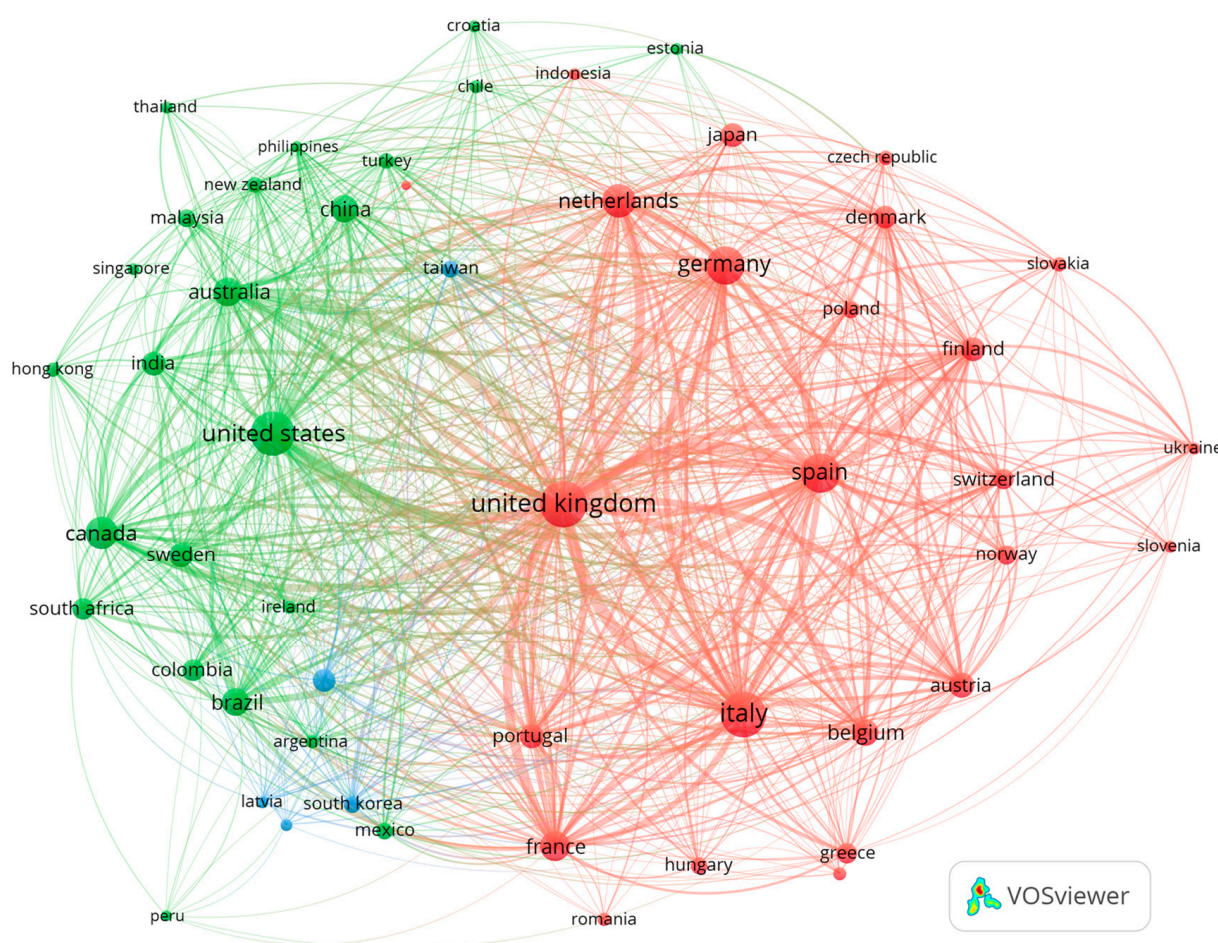
**Figure 6.** Co-authorship network of countries in the social innovation literature (min. number of occurrences: 10).

The analysis of the structure of international collaboration in the social innovation literature was complemented by the citation network of countries presented in Figure 7. The size of the circles is proportional to the number of publications assigned to a country. The lines illustrate existing mutual citations of authors coming from the countries connected by the line. The wider the line, the more existing citations there are. The countries with the highest total link strength value (which is the number of mutual citations of authors from given countries) are shown in Table A6. As indicated by the analysis results:

- The countries with the highest total link strength were: the United Kingdom, Spain, Italy, the United States, the Netherlands.



- Finland was characterized by a high total link strength, despite the relatively low number of publications.
- There were three scientific communities publishing in the field of social innovation, and their most important representatives were:
  - Red cluster: the United Kingdom, Spain, Italy, the Netherlands, France, Germany, Finland, Austria, Portugal, Belgium, Switzerland,
  - Green cluster: the United States, Australia, Canada, Brazil, Sweden, India, China, Turkey, South Africa, New Zealand,
  - Blue cluster: South Korea, the Russian Federation, Taiwan, Latvia, the United Arab Emirates.

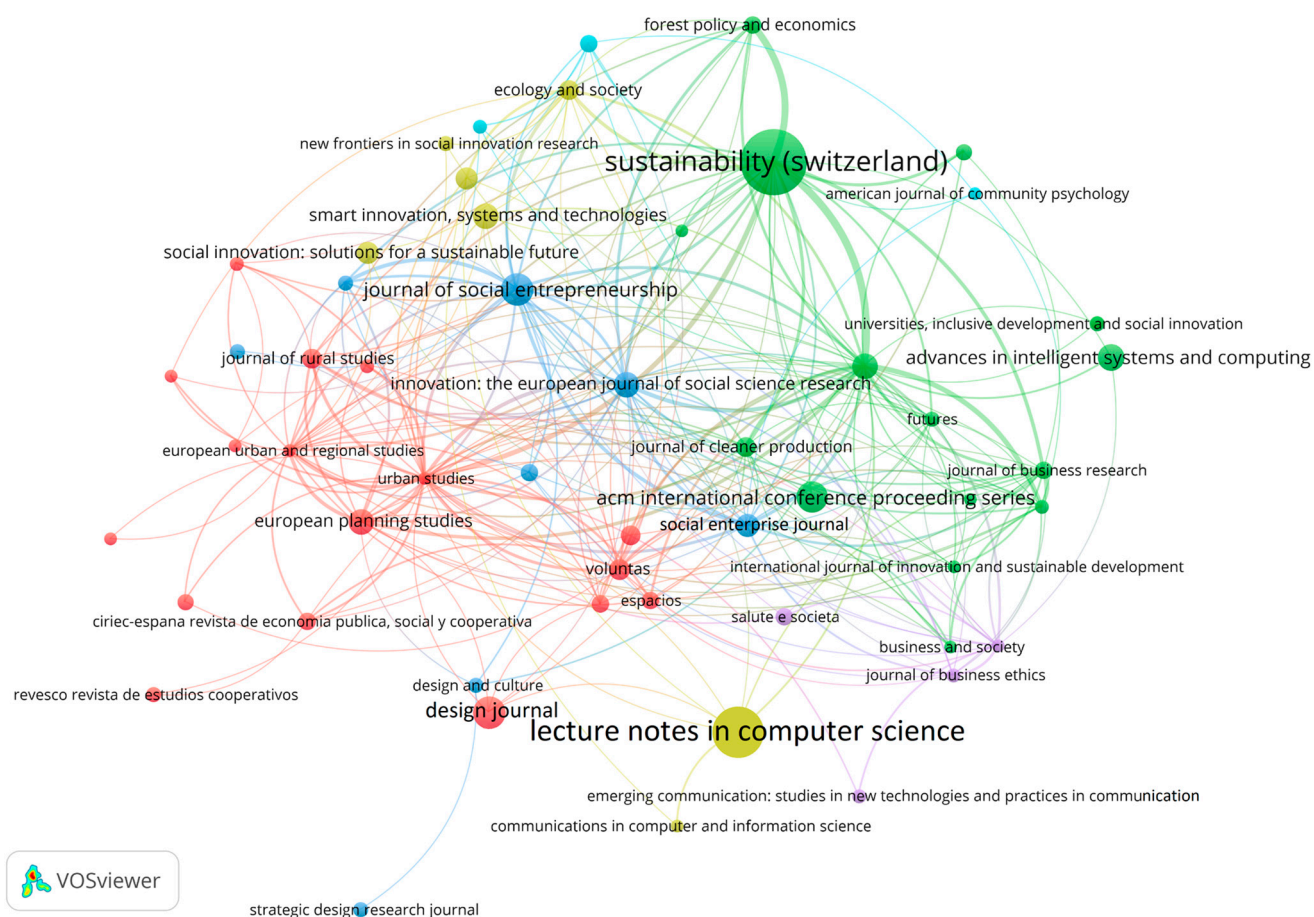


**Figure 7.** Citation network of countries in the social innovation literature (min. number of occurrences: 10).

In the next step, the analysis covered the structure of collaboration between sources in terms of the creation of knowledge in the social innovation area. The structure was presented as a citation network of sources in Figure 8. The network structure shows the existing interrelations (lines), the strength of these interrelations (line width) and the source clusters represented by different colors. In order to clearly illustrate the most important sources and the interrelations among them, only those represented by at least 10 publications were taken into consideration. The most significant sources with the highest total link strength (being the total number of citations of the sources) are listed in Table A7. As indicated by the analysis results:

- The creation of knowledge in the field of social innovation was realized through 1710 sources, 1234 of which were cited by other sources, and 55 formed the final network.

- The most important sources in terms of the number of mutual citations (total link strength) in which authors published their findings from the research on social innovation were: Sustainability, Technological Forecasting and Social Change, Urban Studies, and Journal of Social Entrepreneurship.
- Technological Forecasting, Social Change, and Urban Studies achieved relatively high values of the total link strength, despite the small number of documents they represented.
- The groups of sources with the strongest mutual citation, representing individual clusters, were those formed by:
  - Red cluster: Urban Studies, European Urban and Regional Studies, European Planning Studies, Voluntas,
  - Green cluster: Sustainability, Technological Forecasting and Social Change, Forest Policy and Economics, Journal of Business Research,
  - Dark blue cluster: Journal of Social Entrepreneurship, Innovation: the European Journal of Social Science Research, Social Enterprise Journal, Journal of Human Development and Capabilities,
  - Yellow cluster: Ecology and Society, Lecture Notes in Computer Science, Challenge Social Innovation: Potentials for Business, Social Entrepreneurship, Welfare and Civil Society, Smart Innovation, Systems and Technologies.



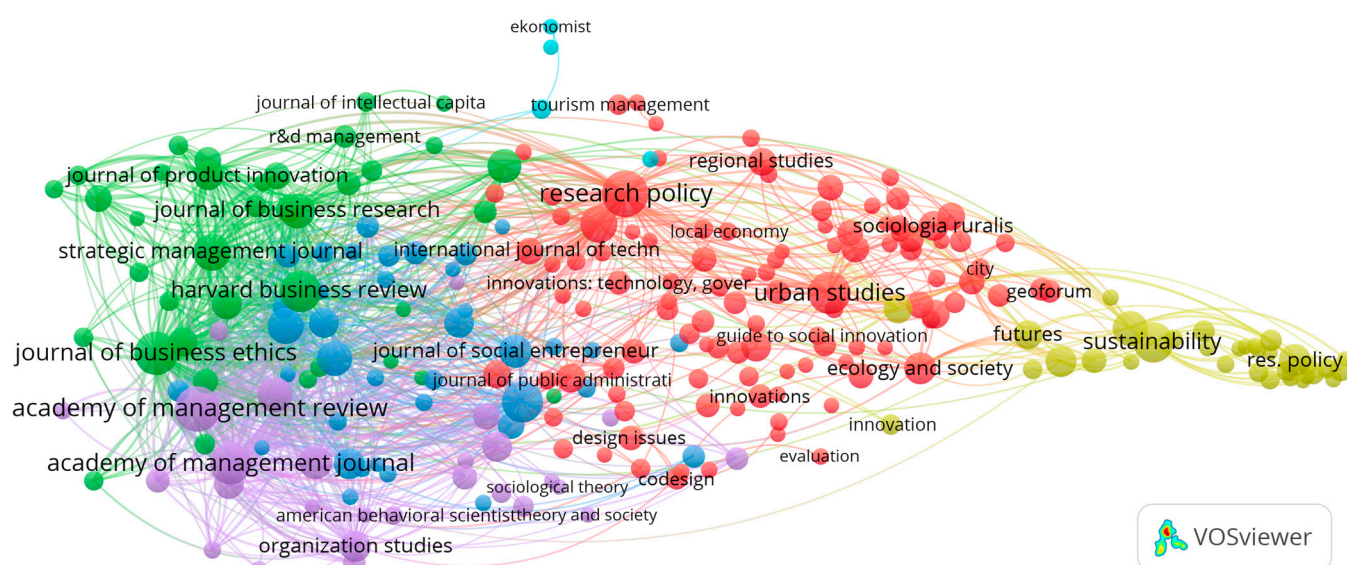
**Figure 8.** Citation network of sources in the social innovation literature (min. number of occurrences: 10).

The analysis of the interrelations among sources was complimented by checking the structure of co-citation of sources (Figure 9). The frequency of co-citations of two papers by authors of another publication indicates the thematic links existing between them. Such publications contain related sub-fields of the social innovation literature. The size of the circles is proportional to the number of co-citations of given sources. The higher the number of co-citations, the larger the circle representing a given source. For reasons of clarity and



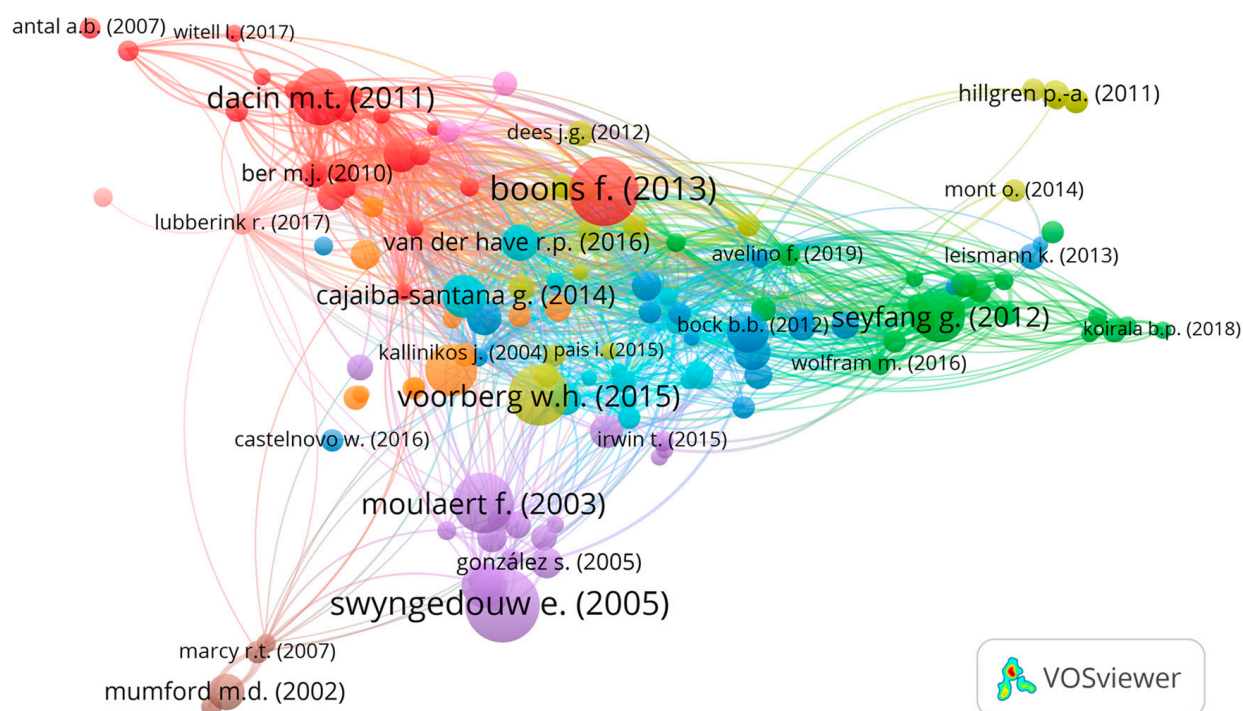
to highlight the most important sources, their number was reduced to those co-cited at least 50 times. The sources with the highest total link strength are listed in Table A8. As indicated by the analysis results:

- A total of 79,381 sources were cited at least once by publications describing the findings of the research on social innovation, and 249 of them were cited at least 50 times.
- The most important sources in terms of the number of co-citations (with the highest total link strength) were: Academy of Management Review, Journal of Business Ethics, Academy of Management Journal, Harvard Business Review.
- The groups of the most often co-cited sources, representing individual clusters, were those formed by:
  - Red cluster: Research Policy, Technological Forecasting and Social Change, Urban Studies, Ecology and Society,
  - Green cluster: Journal of Business Ethics, Harvard Business Review, Strategic Management Journal, Journal of Business Research,
  - Dark blue cluster: Journal of Business Venturing, Entrepreneurship Theory and Practice, Stanford Social Innovation Review, Journal of Social Entrepreneurship,
  - Yellow cluster: Sustainability, Technovation, Energy Policy, Science,
  - Purple cluster: Academy of Management Review, Academy of Management Journal, Organization Science, Administrative Science Quarterly.



**Figure 9.** Co-citation network of sources in the social innovation literature (min. number of occurrences: 50).

The analysis of the existing networks of collaboration was also complemented by an analysis of the bibliographic coupling network of documents (Figure 10). The relatedness of the items analyzed by means of the bibliographic coupling of documents is determined based on the number of references they share. To identify the strongest relations and to present them with sufficient clarity, the analysis was limited only to those cited at least 50 times. This condition was satisfied by 157 out of the total of 3843 documents. The size of the circles is proportional to the number of citations. A bigger circle means that the publication achieved a higher number of citations. The lines connect publications co-citing another publication. The strength of a link reflects the number of references co-cited by the two publications. Bibliographic coupling thus makes it possible to establish publications which are the most similar to each other in terms of their topics. It also enables identification of the structures of a publication dedicated to similar themes. The most important publications in terms of the total link strength are listed in Table A9.



**Figure 10.** Bibliographic coupling network of documents in the social innovation literature (min. number of occurrences: 50).

As indicated by the analysis results:

- The publications with the highest total link strength were: Nicholls and Murdock [108], Philips et al. [62], Olsson et al. [109], Edwards-Schachter and Wallace [1], Cajaiba-Santana [28].
- There were publications whose topics were similar (these made up clusters). The most important representatives of their four biggest groups (publications with the highest total link strength) were:
  - Red cluster: comprising studies by Philips et al. [62], Maclean et al. [61], Cui et al. [110], Rao-Nicholson et al. [57],
  - Green cluster: comprising studies by Witkamp et al. [53], Seyfang and Longhurst [111], Seyfang and Haxeltine [112], Seyfang and Longhurst [113],
  - Dark blue cluster: comprising studies by Olsson et al. [109], Moore et al. [114], Moore et al. [115], Westley et al. [116],
  - Yellow cluster: comprising studies by Chalmers [117], Edwards-Schachter et al. [46], Ayob et al. [93], Grimm et al. [118].

#### 4. Conclusions

Despite the keen interest in social innovation among scientists in recent years, the concept still has not been given a commonly accepted definition. As a result, this notion has different meanings across various disciplines, cultures, sectors, and countries [1,12]. There are various perspectives of social innovation conceptualization. In addition, hybrid forms of this concept have emerged, e.g., corporate social innovation, digital social innovation, or open social innovation. The multifaceted nature of social innovation does not inevitably have to be viewed as negative because it creates space for varied interpretations and more extensive analyses [13,14].

Due to the growing academic interest in social innovation there is a need for a comprehensive bibliometric analysis of the structure and evolution of this research field. So far, there have been very few in-depth studies in this area. In addition, the number of publications in this domain grows dynamically year by year. It was revealed that 60.5% of all publications on the social innovation indexed in the Scopus database were published

in the period 2017–2021. For this reason, it was assumed that the existing research needs expansion and updating. Therefore, this study presented descriptive and performance bibliometric analyses as well as research field mapping based on network analyses.

The descriptive and performance analysis showed that literature on social innovation covered diverse subject areas, such as Social Sciences, Business, Management and Accounting, Economics, Econometrics and Finance, and Computer Science, in particular. Most of these publications appeared in Sustainability, Lecture Notes in Computer Science, Design Journal, and Journal of Social Entrepreneurship. The most prolific and influential authors in the analyzed area were Frank Moulaert and Frances R. Westley. However, the scientific landscape of the domain under analysis was mainly developed by scientists from the countries, such as the United Kingdom, Italy, the United States, Spain, and Germany. Considering the affiliations of relevant authors, Politecnico di Milan, KU Leuven, Technische Universität Dortmund, University of Waterloo, and Université du Québec à Montréal should be distinguished.

The research field mapping based on the network analyses resulted in very interesting findings. The co-occurrence network of authors' keywords indicated that the analyzed literature primarily concerned topics such as social innovation, social entrepreneurship, innovation, social enterprise, sustainability, governance, entrepreneurship, sustainable development, social capital, and social change. However, the analysis of thematic evolution revealed that in the initial period of the social innovation exploration, research was mainly focused on two sub-areas: social innovation and social change. In the following years, additional sub-areas were developed, related to concepts such as sustainable development, collaboration, empowerment, climate change, entrepreneurship, participatory design, social economy, co-creation, digital social innovation, and governance. Moreover, thematic maps showed that the recent basic themes in the social innovation literature comprised: (1) governance, rural development, and participation, and (2) social innovation, social entrepreneurship, and social enterprise. The recent motor themes were related to: (1) digital social innovation, education, and smart city, and (2) innovation sustainability and sustainable development. Furthermore, there were also identified niche themes: (1) energy transition, transformation; (2) social innovations, institutions, civil society, and the one emerging or declining theme focusing on co-creation, design thinking and co-design. Therefore, the results of the conducted analysis made it possible to conclude that, in the coming years, the attention of researchers exploring social innovation should focus on further development of those basic themes which are still not developed well enough. This concerns the in-depth search for links between social innovations, governance and rural development, as well as further exploration of theoretical and practical aspects of social entrepreneurship. Moreover, future research should cover areas identified as niche themes. In particular, studies should focus on looking for opportunities to implement social innovations in the field of energy transition and transformation, as combating the climate change and achieving the goals set by the Paris Agreement are now among the top priorities of many countries, and policymakers are looking for solutions that will be acceptable to the public. Research on social innovation from the perspective of design thinking and co-design, indicated as emerging themes, may also play an important role in the expansion of the analyzed research field.

It is also worth noting that the co-authorship network of countries and citation network of countries revealed that definite leader in these areas was the United Kingdom. On the other hand, the citation network of sources indicated the most important sources in terms of the number of mutual citations were: Sustainability, Technological Forecasting and Social Change, and Urban Studies. By contrast, the most important sources in terms of the number of co-citations were: Academy of Management Review, Journal of Business Ethics, and Academy of Management Journal.

Although great effort has been made to perform this research in the most accurate manner, it has some limitations. The bibliometric analysis was based on publications indexed in the Scopus database. This means that it cannot be assumed as complete as

there might be other important publications in the domain under analysis. In order to gather more information and obtain more comprehensive research results in the field of social innovation, further studies should take account of analyses based on other databases (e.g., Web of Science or Google Scholar). Moreover, it should be noted that the number of publications and the number of their citations were used as the main measures of the quantity and quality of the analyzed literature regardless of their actual scientific merit. However, a single publication in a prestigious journal and a citation from a high-quality journal may be more valuable than publications and multiple citations from peripheral journals. Therefore, further research may take into account not only the number of publications, but also the impact of their sources determined based on specific metrics (e.g., SCImago Journal Rank or Source Normalized Impact per Paper). Considering the number of citations, other factors, such as the year of publication, the specificity of the scientific discipline, and the document type, should also be taken into account (e.g., based on the Field-Weighted citation impact). Nevertheless, it must be remembered that some information about the quality of a publication can be provided by specific metrics describing its source or received citations, but its reliable assessment can only be made by experts in a particular research field. Furthermore, it is expected that the number of publications on social innovation will increase rapidly in the future. Due to that, the presented results might become obsolete relatively fast. However, this also means that another update on the exploration of the social innovation research field will be necessary.

Nonetheless, the aim of this study was to identify research patterns and trends in the scientific literature on social innovation based on a comprehensive, longitudinal, and up-to-date bibliometric analysis. This resulted in the indication of the most productive authors, sources, organizations, and countries in the social innovation literature, as well as the determination of the most influential publications together with the identification and visualization of the thematic evolution and scientific collaboration in the analyzed research field. These results may be utilized by potential authors to adopt specific publication strategies focused on motor, niche, basic, or emerging themes in the research on social innovation. Moreover, knowledge regarding the most influential authors in the analyzed field and the most prolific academic organizations and countries could create a valuable basis for establishing interesting and meaningful scientific collaboration in future and enable further research growth. Furthermore, the practitioners and decision-makers dealing with issues related to social innovation on a daily basis could indicate the most influential publications and sources in this area.

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## Appendix A

**Table A1.** Most productive sources in the social innovation literature indexed in the Scopus database.

| Source  | Number of Publications | CS 2020 | SJR 2020 | SNIP 2020 | Publisher        |
|---|------------------------|---------|----------|-----------|------------------|
| Sustainability  | 128                    | 3.9     | 0.612    | 1.242     | MDPI             |
| Lecture Notes in Computer Science                           | 85                     | 1.8     | 0.249    | 0.628     | Springer Nature  |
| Design Journal  | 41                     | 1.4     | 0.349    | 0.693     | Taylor & Francis |
| Journal of Social Entrepreneurship                          | 40                     | 3.4     | 0.607    | 1.436     | Taylor & Francis |
| ACM International Conference Proceeding Series              | 39                     | 1.2     | 0.182    | 0.296     | ACM              |
| Advances in Intelligent Systems and Computing               | 31                     | 0.9     | 0.184    | 0.428     | Springer Nature  |
| Innovation: The European Journal of Social Science Research | 30                     | 3.2     | 0.525    | 1.423     | Taylor & Francis |
| European Planning Studies                                   | 29                     | 4.6     | 1.214    | 1.743     | Taylor & Francis |
| Smart Innovation Systems and Technologies                   | 29                     | 1.0     | 0.172    | 0.402     | Springer Nature  |
| Technological Forecasting and Social Change                 | 28                     | 12.1    | 2.226    | 3.037     | Elsevier         |

Note: CS—CiteScore; SJR—SCImago Journal Rank; SNIP—Source Normalized Impact per Paper.

**Table A2.** Most productive organizations and countries in the social innovation literature indexed in the Scopus database.

| Organization                      | Number of Publications | Country        | Number of Publications |
|-----------------------------------|------------------------|----------------|------------------------|
| Politecnico di Milano             | 82                     | United Kingdom | 529                    |
| KU Leuven                         | 44                     | Italy          | 504                    |
| Technische Universität Dortmund   | 43                     | United States  | 456                    |
| University of Waterloo            | 41                     | Spain          | 341                    |
| Université du Québec à Montréal   | 37                     | Germany        | 311                    |
| University of Oxford              | 34                     | Netherlands    | 213                    |
| Newcastle University              | 33                     | Canada         | 212                    |
| Wageningen University & Research  | 29                     | France         | 163                    |
| Delft University of Technology    | 28                     | Australia      | 153                    |
| Università degli Studi di Firenze | 27                     | China          | 138                    |

**Table A3.** Main parameters of the top 10 authors' keywords (ranked by the total link strength) in the co-occurrence network of author keywords.

| Keyword.                | Number of Links | Total Link Strength | Occurrences |
|-------------------------|-----------------|---------------------|-------------|
| social innovation       | 77              | 1430                | 1680        |
| social entrepreneurship | 46              | 318                 | 212         |
| Innovation              | 58              | 212                 | 198         |
| social enterprise       | 41              | 190                 | 100         |
| sustainability          | 50              | 171                 | 118         |
| Governance              | 35              | 109                 | 67          |
| entrepreneurship        | 33              | 102                 | 53          |
| sustainable development | 44              | 99                  | 56          |
| social capital          | 32              | 85                  | 44          |
| social change           | 33              | 78                  | 46          |

**Table A4.** Main characteristics of clusters in the thematic maps.

| Time Period   | Themes Type | Main Keywords in Clusters (Occurrences)  | Centrality  | Density |
|---|-------------|--|---|---------|
| 1966–2000   | MT          | social innovation (6)  | 3.17  | 410.71  |
|   | NT          | social change (2)  | 0.00  | 550.00  |
| 2001–2010   | MT          | sustainable development (5); governance (4); co-design (2)                               | 0.59  | 326.19  |
|   |             | social innovations (4); adaptability (2), behavior (2)                                   | 3.20  | 323.33  |
|   |             | collaboration (3); sustainability (3); adaptive cycle (2)                                | 0.60  | 310.29  |
|   |             | empowerment (3); citizenship (2)   | 1.20  | 261.94  |
|   |             | climate change (3); management (2)   | 0.27  | 252.08  |
|   |             | social innovation (62); corporate social responsibility (6); social entrepreneurship (4) | 0.02  | 250.00  |
|   | BT          | innovation (24); leadership (4); social change (4)                                       | 0.12  | 230.00  |
|   |             | employment (3), international comparison (2)   | 0.13  | 216.67  |
|   |             | emergent change (2); planned change (2)  | 4.08  | 216.20  |
|   |             | social value creation (2)  | 4.98  | 196.54  |
|   |             | EDT  | participatory research (3)  | 0.00    |
| 2011–2015   | MT          | social innovations (12); governance (11); empowerment (8)                                | 1.96  | 75.49   |
|   | MT/BT       | innovation (45); sustainability (18); sustainable development (8)                        | 4.52  | 72.64   |
|   | BT          | social innovation (295); social entrepreneurship (51); social enterprise (19)            | 3.24  | 65.64   |
|   |             | social economy (12); education (10); social capital (9)                                  | 4.42  | 62.20   |
|   | BT/EDT      | case study (7); design (7); climate change (5)   | 1.86  | 64.84   |
|   | EDT         | entrepreneurship (13); social change (7); crowdsourcing (4)                              | 1.54  | 68.08   |
|   | NT          | participatory design (11); design education (6); social design (4)                       | 0.99  | 131.36  |
|   |             | diversity (8); digital inclusion (6); collective intelligence (5)                        | 1.60  | 80.46   |
|   |             | collaboration (8); social services (5); social innovation (4); public health (4)         | 0.48  | 72.64   |
|   | 2016–2021   | MT   | innovation (126); sustainability (97); sustainable development (43) | 1.48    |
| digital social innovation (32); education (23); smart city (23) |             |  | 2.17  | 18.03   |
| BT  |             | social innovation (1318); social entrepreneurship (157); social enterprise (78)          | 2.49  | 17.70   |
|   |             | governance (52); rural development (32); participation (29)                              | 3.36  | 17.14   |
| EDT   |             | co-creation (39); design thinking (31); co-design (30)                                   | 0.93  | 16.22   |
| NT  |             | social innovations (61); institutions (15); civil society (14)                           | 0.82  | 21.62   |
|   |             | energy transition (14); transformation (14)  | 1.28  | 18.67   |

Note: BT—Basic themes; EDT—Emerging or declining themes; MT—Motor themes; NT—Niche themes.

**Table A5.** Main parameters of the top 10 countries (ranked by the total link strength) in the co-authorship network of countries.

| Country        | Number of Links | Total Link Strength | Documents |
|----------------|-----------------|---------------------|-----------|
| United Kingdom | 48              | 526                 | 529       |
| Italy          | 38              | 297                 | 504       |
| United States  | 42              | 297                 | 456       |
| Spain          | 36              | 268                 | 341       |
| Netherlands    | 39              | 254                 | 213       |
| Germany        | 39              | 232                 | 311       |
| France         | 31              | 151                 | 163       |
| Switzerland    | 33              | 145                 | 65        |
| Belgium        | 23              | 132                 | 116       |
| Australia      | 31              | 124                 | 153       |

**Table A6.** Main parameters of the top 10 countries (ranked by the total link strength) in the citation network of countries.

| Country        | Number of Links | Total Link Strength | Documents |
|----------------|-----------------|---------------------|-----------|
| United Kingdom | 52              | 4327                | 529       |
| Spain          | 49              | 1979                | 341       |
| Italy          | 51              | 1909                | 504       |
| United States  | 51              | 1787                | 456       |
| Netherlands    | 52              | 1410                | 213       |
| France         | 50              | 1396                | 163       |
| Germany        | 48              | 1363                | 311       |
| Australia      | 49              | 1202                | 153       |
| Canada         | 46              | 1001                | 212       |
| Finland        | 44              | 881                 | 95        |

**Table A7.** Main parameters of the top 10 sources in the citation network of sources (ranked by the total link strength).

| Source  | Number of Links | Total Link Strength | Documents |
|---|-----------------|---------------------|-----------|
| Sustainability (Switzerland)                                | 29              | 190                 | 128       |
| Technological Forecasting and Social Change                 | 37              | 186                 | 28        |
| Urban Studies   | 39              | 144                 | 10        |
| Journal of Social Entrepreneurship                          | 24              | 93                  | 40        |
| Innovation: The European Journal of Social Science Research | 24              | 90                  | 30        |
| European Urban and Regional Studies                         | 27              | 66                  | 10        |
| European Planning Studies                                   | 18              | 64                  | 29        |
| Social Enterprise Journal                                   | 18              | 61                  | 25        |
| Forest Policy and Economics                                 | 9               | 60                  | 16        |
| Journal of Business Research                                | 17              | 55                  | 15        |

**Table A8.** Main parameters of the top 10 sources in the co-citation network of sources (ranked by the total link strength).

| Source                               | Number of Links | Total Link Strength | Global Citations |
|--------------------------------------|-----------------|---------------------|------------------|
| Academy of Management Review         | 223             | 50899               | 926              |
| Journal of Business Ethics           | 226             | 48018               | 839              |
| Academy of Management Journal        | 220             | 45326               | 730              |
| Harvard Business Review              | 226             | 31902               | 701              |
| Strategic Management Journal         | 217             | 31460               | 527              |
| Research Policy                      | 228             | 30798               | 982              |
| Journal of Business Venturing        | 226             | 26666               | 514              |
| Organization Science                 | 224             | 23575               | 464              |
| Administrative Science Quarterly     | 225             | 23566               | 443              |
| Entrepreneurship Theory and Practice | 226             | 22648               | 460              |

**Table A9.** Main parameters of the top 10 sources in the bibliographic coupling network of documents (ranked by the total link strength).

| Document                          | Number of Links | Total Link Strength | Global Citations |
|-----------------------------------|-----------------|---------------------|------------------|
| Nicholls and Murdock [108]        | 65              | 226                 | 96               |
| Philips et al. [62]               | 57              | 183                 | 213              |
| Olsson et al. [109]               | 70              | 177                 | 60               |
| Edwards-Schachter and Wallace [1] | 60              | 169                 | 90               |
| Cajaiba-Santana [28]              | 48              | 161                 | 340              |
| Chalmers [117]                    | 56              | 161                 | 60               |
| Edwards-Schachter et al. [46]     | 54              | 153                 | 100              |
| Maclean et al. [61]               | 49              | 151                 | 82               |
| Ayob et al. [93]                  | 53              | 150                 | 96               |
| Witkamp et al. [53]               | 63              | 146                 | 73               |

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