Journal of Economic Analysis

Homepage: https://www.anserpress.org/journal/jea

Innovation in creative industries: Bibliometrix analysis and research agenda

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ABSTRACT

Innovation has received a great attention in the creative industries literature. We propose in this study a bibliometric method to examine the literature on innovation in creative industries (ICI). A file of 656 manuscripts published on ICI between 1998 and 2022 was retrieved from the Web of Science Core Collection for analysis. The results highlight the evolution of study volume, authors, affiliated institutions and countries, author networks, keyword co-occurrences, and keyword networks. The study also includes a thematic map that highlights four types of research: driving themes (e.g., digital technology, cultural innovation, performing arts, product innovation, innovation management); core and cross-cutting themes (e.g., creativity, digitization, technology, copyright); emerging themes (e.g., gender, artificial intelligence, sustainability); and specialized and peripheral themes (e.g., gender, blockchain, digital music). We finally conclude by proposing future perspectives and a research agenda in this area.

KEYWORDS

Innovation; Creative industries; Bibliometric analysis; Research agenda

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ISSN 2811-0943
doi: 10.58567/jea04010002

Received 13 January 2024; Accepted 6 March 2024; Available online 8 March 2024; Version of Record 15 March 2025

1. Introduction

Creative industries (ICs) form a subsector in which the creation, production and marketing of goods and services are combined. They include categories such as, performing arts, fashion, cinema, music, museums, crafts, festivals (DCMS 1998). In recent decades, ICs have grown remarkably, and the attention given to them has increased (Loots & Witteloostuijn, 2018); due to their growing importance in the economic sphere (Picard, 2018). In Europe for example, according to the report of Unesco (2018) on the reshape of cultural policies, the cultural and creative sectors generate annual revenues of 2250 billion dollars and provide nearly 30 million jobs worldwide (Unesco 2018). Thus, with their high potential for value creation and employment (Muller et al., 2009), ICs have become one of the most important economic subsectors (Thornton and Jones, 2005). They have the most dynamic highest growth rates (Jones et al. 2016; UNCTAD 2021). Apart from their economic power, they are also a source of cultural and societal issue (Jones et al. 2016). They have a positive effect on life quality, inclusion and social cohesion, and play a crucial role in safeguarding people's cultural identity (Matarasso 1997; Mauri et al., 2018; Throsby, 2001). In view of these economic and social potentialities, ICs became over time, an emerging area of public policy and the interest shown in them by policymakers and researchers has increased (Gollmitzer and Murray, 2008; Loots and Witteloostuijn 2018). Thus, even if in the early and mid-twentieth century, the creative industries were not often considered as an important area of economic analysis, this changed towards the end of the century with a growing body of academic literature and policy reports. Several studies have been devoted to the study of the factors of CIs economic growth, specifically innovation in the creative industries (ICI). (e.g., Brandellero and Kloosterman, 2010; Hotho & Champion 2011; Pratt and Jeffcutt, 2009; Szakálné Kanó, Vas & Klasová 2022). Indeed, according to several researchers (e.g., Jones et al. 2016; Setyanti 2018), the potentialities generated by ICs are the result of innovations within them. Their mode of production of cultural products or services is characterized by a continuous flow of improvements and changes (Lee and Rodriguez-Pose 2014). Then, in their daily work, artists have to create a new product or service (Wijngaarden et al., 2016). Hence, to remain viable, CIs must adopt a strategy in which innovation plays a central role (Jones et al., 2016). Given this importance of innovation for ICs, a plethora of research on this topic has emerged, particularly in the past five years (see Gohoungodji and Amara 2023). Furthermore, as conclude by Gohoungodji and Amara (2022), knowledge on the topic is fragmented and disparate among several disciplines and journals. Therefore, it is important to review the existing research to understand the intellectual framework and the flow of knowledge about innovation in creative industries (ICI), to revisit thematic evolution and to propose avenues for future research. Therefore, our study aims to examine the knowledge on ICI by quantifying and analyzing the volume of publications, identifying the most relevant network structure of authors, and developing a thematic map of ICI research. To accomplish this, the study is conducted around the following research questions:

i. What are the major publications, authors, institutions, and countries in the field of ICI?
ii. What about the network structure of authors and keywords?
iii. What are the main topics covered by ICI research? What are the driving themes, core and cross-cutting themes, emerging themes, and specialized and peripheral themes of ICI research?
iv. What are the promising future avenues for ICI research?

By responding to these questions, this study contributes to the ICI literature by identifying metrics, topics and trends that reflect the state of the literature on ICI and encouraging further research.

2. Innovation in creative industries

2.1. ICI, definition and concepts

The literature on the definition of ICI has revealed that it varies from one author to another depending on their schools of thought. According to Gohoungodji and Amara (2023), there are three groups of authors who define ICI

differently. According to their findings, the first group defines the ICI according to its attributes in manufacturing. Thus, ICI is seen as a "traditional" innovation that emerges mainly from technological innovations and typical, costly efforts based on scientific and technical knowledge (Caves 2000). ICI seen under this approach involves the successful implementation of a new product, service or process (Gordon and McCann 2005), or simply the realization of a new idea for a product or process (Fagerberg, Mowery and Nelson 2005; Gohoungodji 2020). For the second group of authors, ICI innovation is distinct from innovation in manufacturing because it has some attributes that are specific to them. It is not a technological big bang (Pratt and Gornostaeva 2009), but innovations that are often aesthetic and subtle changes in the appearance or design of a product, or its production process (Stoneman 2009). It is based on the reflexive expressive knowledge systems of the humanities and copyrighted products Wijngaarden et al. (2016) and its driving forces are often creative inspiration (Jaaniste 2009) or artistic creativity (Filitz et al. 2015; Galenson 2008). The last group is that of authors who believe that ICI can only be understood by adopting a mixed vision that integrates the first two, assimilation and differentiation. The common point to these different approaches of vision on the definition of ICI is the fact that in one or the other approach, innovating in ICI implies the implementation of something new, the addition of a new element whether it is at the level of the form of the product or enters its functionality. Finally, adapting to Schumpeter (1934) definition of innovations, ICI can be defined as new combinations of production factors such as the production of new goods, introduction of new processes, opening of new markets, access to new sources of raw materials and intermediates, and reorganization of a creative industry.

Furthermore, from a conceptualization perspective, contemporary research offers a wide variety of concepts of innovation in the creative industries (Jin and Cedrola (2018), Wijngaarden et al. 2016). According to Gohoungodji and Amara 2023, the different concepts of CII can be grouped into two blocks. The first block concerns concepts related to the cultural, artistic and symbolic aspects of products or services (*artistic innovation, aesthetic innovation, stylistic innovation*, *architectural innovation*, *art innovation*, *design innovation*, etc.). The second one gathers the concepts related to the economic aspects (p. ex., *business model innovation, economic innovation, cultural policy innovation),* relational (p. ex., *collaborative innovation, network innovation*, *ecosystem innovation* etc.) or hidden aspects of innovation (*hidden innovation* etc.).

2.2. Overview of research on ICI

Previous studies have described and discussed knowledge related to ICI (e.g., Wijngaarden et al., 2020; Wohl (2022); etc.). For example, Wijngaarden et al., 2020 developed a conceptualization of innovation in the creative industries and conclude that creative workers express many views on innovation, with three main approaches: innovation as something completely new, innovation as a contribution to the society, and innovation as a continuous recombination of new and existing elements. Gohoungodji and Amara (2023) conducted a systematic review of the literature on the definition, determinants of ICI. From the perspective of the definition of ICI, they conclude that ICI is best defined by taking a holistic view, considering its sources, the industries in which it occurs, and its outcome. As for the determinants, ICI is described as the result of a combination of factors, among which artistic creativity is the fundamental element, and its presence is a prerequisite for its occurrence (Gohoungodji and Amara 2023). Li (2020) conducted a systematic review of the literature on the relationship between digital technologies business model innovations in the creative industries. He concludes that digital technologies facilitate business model innovations. Wohl (2021) reviews the literature on innovation and creativity in the creative industries. He concludes that the configurations of creative producers' social networks and their face-to-face interactions within those networks shape both the creative collaboration process and the resulting innovations. Gohoungodji and Amara (2022) investigate the historical roots of innovation in the creative industries by looking at the contributions of researchers who have been important to the topic over the long term. Based on the spectroscopy method of the

reference publication year, they identify 9 peaks, each of which is caused by one or more publications. The first one is caused by Schumpeter's work (1934) and the last one by Miles & Green's book (2008) that characterizes ICI as a fuzzy innovation. Several other studies have shown the importance of many other factors for ICI such as individual-related factors (Sunley et al. 2008; Clegg and Burdon 2021), Organizational factors (Benghozi et al. 2015; Ghazinoory et al. 2020), etc.

These studies used different methods to review the literature, including analysis of the systematic literature review (e.g., Li 2020; Ruiz and Hincapie 2015), spectroscopic (Gohoungodji and Amara 2022), content analysis (Jones et al., 2016), field survey (Colapinto and Porlezza 2012; Santoro, Bresciani, & Papa 2018), etc. Most of these studies have covered a limited time period. For example, Gohoungodji and Amara (2023) conducted a systematic review to understand the current state of research on ICI, but their study only took into account empirical publications leaving out conceptual articles, conference papers, books, book chapters, reports, editorials, etc. Thus, no study, systematic review or bibliometric study has so far covered the entire existing body of ICI. In addition, none of the existing studies on ICI has mobilized a bibliometric study. Therefore, the objective of this study was to conduct a bibliometric analysis of studies published in the literature until the end of 2022 in order to consolidate the current state of knowledge on ICI. Indeed, bibliometrics provides a very objective, structured and comprehensive overview of a research field that is developing exponentially (Mustak et al., 2021). It has already been widely used in literature reviews in various disciplines, such as innovation in tourism (see Loureiro et al., 2020), and artificial intelligence (see Knani, Echchakoui & Ladhari 2022).

Specifically, our study aims to examine the current state of knowledge on ICI and propose a research agenda. To accomplish this, the study will be conducted around the following research questions:

I What are the major publications, authors, institutions, and countries in the field of ICI?
II What about the network structure of authors and keywords?
III What are the main topics covered by ICI research? What are the driving themes, core and cross-cutting themes, emerging themes, and specialized and peripheral themes of ICI research?
IV What are the promising future avenues for ICI research?

3. Method

Following Donthu et al., (2021), we adopted four steps for conducting bibliometric analysis along with the general guidelines. These steps are successively: aims and research questions (1), techniques for bibliometric analysis(2), data collect for bibliometric analysis(3) and bibliometric analysis and findings report(4).

3.1. Aim, scope, and research questions

This study aims to examine the current state of the literature on ICI through bibliometric analyses and to propose a research program. This field is characterized by a high volume of scientific publications. To achieve this, the study is conducted around the following research questions:

1. What are the major publications, authors, institutions, and countries in the field of ICI?
2. What about the network structure of authors and keywords?
3. What are the main topics covered by ICI research? What are the driving themes, core and cross-cutting themes, emerging themes, and specialized and peripheral themes of ICI research?
4. What are the promising future avenues for ICI research?

3.2. Tools and Techniques for bibliometric analysis

As our study intends to provide a review of the past, present, and future of research on ICI with a large

bibliometric corpus, we selected then a combination of co-citation analysis (past), bibliographic coupling (present), and co-word analysis (e.g., notable words in the implications and future research directions of full texts) (future) as recommended by Donthu et al. (2021).

According to Hjørland (2013), co-citation analysis assumes that publications are cited together frequently are similar thematically. Then, two publications are connected when they co-occur in the reference list of another publication. Furthermore, co-citation analysis concentrates only on highly-cited publications, and leaves publications that are recent or niche out of its thematic clusters. Moreover, bibliographic coupling is a technique for science mapping that operates on the assumption that two publications sharing common references are also similar in their content (Weinberg, 1974). Finally, while previous two techniques focus on publications, the unit of analysis for co-word analysis is "words. The co-word analysis is a technique that examines the actual content of the publication itself. Thus, to examine the knowledge structure of ICI, we applied multiple bibliometric analyses mobilizing two software: the Bibliometrix #1R-package and the VOSviewer. The Bibliometrix #1R-package software was used to (1) search for ICI's most influential publications, authors, institutions and countries; (2) identify trending topics based on the frequency of authors' keywords over time; and (3) create thematic maps based on co-word analysis and bibliometric grouping. VOSviewer was used to process data related to analysis of co-citations and co-words of authors.

3.3. Data collect for Bibliometric analysis

The search for articles on ICI in WoS being performed by using a keyword string. To formulate this string, we did a primary search to identify the most relevant concepts and expressions associated to ICI. This search was based on the literature about ICI. During this search, the snowball search method was used to list relevant articles such as Wijngaarden et al. (2016), Jin and Cedrola (2018), and Montanari et al. (2016) which we read to identify the most current keywords in the literature. Therefore, the keyword string formulated is composed of two categories of current keywords identified in the literature, namely: « Creative Industries » or components or their synonyms and « Innovation ». The keyword string is as follows:

> *(("Creative industries" OR "Cultural industries" OR "Cultural organization" OR "Creative organizations" OR "Performing arts" OR "Arts" OR "Festival" OR "Music" OR "Museum" OR "Film" OR "Video games" OR "Advertising" OR "Computer games" OR "Crafts" OR "Publishing" OR "Television" OR "Radio") AND (Innovation))*

At the end of December 2022, the keyword string was applied to the Web of science core collection database, which is one of the largest and most reliable databases for bibliometric analysis (Maia et al., 2019). After applying the inclusion and exclusion criteria described in Table 1 and removing duplicates, the first results showed 9,943 potential articles. Then, through two sorting bases on the read of titles, abstracts and keyword (first sorting) and the read of all publications body retained after the first sorting (second sorting), we excluded 9,287 articles. Therefore, a final list of 656 publications was selected for the analysis. The organization chart of the selection process is shown in Figure 1. The file of 656 publications was extracted from Web of Science (WoS).

The last step was to run the bibliometric analysis and report the findings(4).

Table 1. Inclusion and exclusion criteria.

	Criteria	Rationale of criteria
1	Publications that have examined ICI	This criterion allowed us to have a more comprehensive idea of the concept of ICI and thus to be able to reach a better understanding.
2	Article that covered the creative industries, except the software	The cultural value of the productions of software is not explicit (see e.g., Throsby, 2008).
3	Articles published between 1998 and 2022	The first works laying the foundations for the definition and classification of the creative industries took place in 1998 in the Department for Digital, Culture, Media and Sport (DCMS) of the United Kingdom. (Bouquillion, 2010; DCMS, 1998). These works, in particular the DCMS report (1998), are the reference for studies on the creative industries.
4	Articles in English language	English is the language in which the main scholarly business journals are published (Blanchet and De Robillard, 2015). In addition, restrictions to English language in systematic reviews are due to their supposed qualities (Moher et al., 1996).

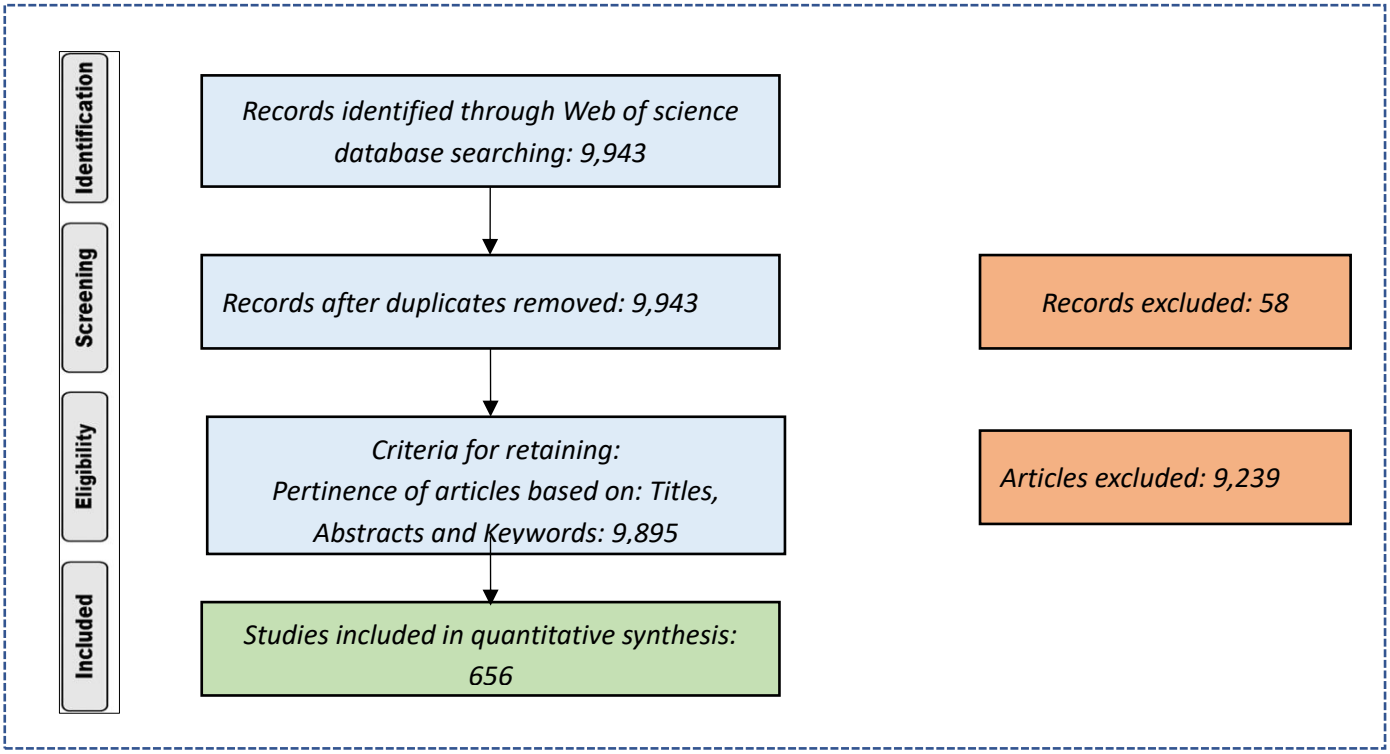

Figure 1. Process of search, recovery, and information selection for bibliometric analysis

Source: own elaboration.

4. Results

4.1. Performance analysis

4.1.1. Publications trend

The corpus of 656 documents selected for the analysis is composed of 603 articles, 27 proceedings papers, 24 early accesses, and 2 book chapters. Figure 2 shows the trend of evolution over time of publications between 1998-2022. The first document on the subject was published in 1998 and the evolution curve of the publication number over time reveals four waves of publication. The first takes place from 1998 to 2005, the second from 2006 to 2014, the third from 2015 to 2019 and the last beginning in 2020 with a peak in 2022. In addition, the number of publications has increased over time with a growth rate of 15.54% and three major peaks in 2010, 2014 and 2022. On the other hand, only 11 papers were published before 2000 and 121 before 2010. More than half of the manuscripts, e.i. 353, were published after 2015 and 30% (178 publications) of the papers were published in the last three years. Given the upward trend of the curve especially in the last five years, we assumed that this trend will continue in the next year. Among the 656 papers, 235 are single-author papers. The average number of co-authors per paper is 2.28. The average number of citations per document is 14.57 while the average number of citations per year per document is 2.89.

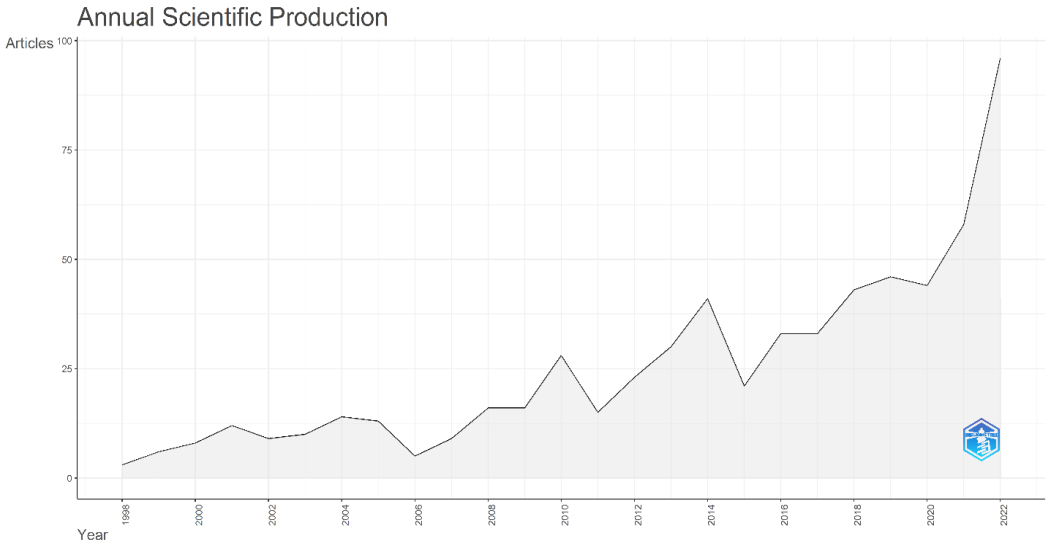

Figure 2. Quantity of annual research of ICI

4.1.2. Relevant journals

The distribution of papers by sources revealed that the 656 are published in 412 journals in related fields such as Business, Marketing, Creative Industries, Sustainability. The most productive 15 journals together published 119 articles out of the total sample. The most prolific journal in terms of publications on ICI is *Sustainability* with 19 articles out of the 656. It is followed by *Publishing research quarterly* with 14 publications, *Technological forecasting and social change* with 9 publications, *Innovation-management policy & practice* with 8 publications. *Industry and innovation*, *International journal of arts management* and *Museum management and curatorship* come next with 7 articles each. *Sustainability* has been the most active source recently in the field of ICI, with 19 articles in the last five years. This spike can be explained by the growing importance of environmental awareness, which is reflected in the development of new sustainable policies in all ICs. The journal with the highest h-index is Technological forecasting and social change (08). The most influential journals in terms of the g-index are *Technological forecasting and social change*, *Industry and innovation*, and *Innovation-management policy & practice* with 9, 8, and

7 publications respectively. The h-index and g-index assess research impact based on the total number of publications and the total number of citations, thus providing a measure of an individual's research performance. The g-index includes the top g articles with at least g citations.

4.1.3. Authors, institutions and countries

(1) Most productive and influential authors

The analysis reveals that the 656 published articles retained in our study were produced by a total of 1378 authors with a co-authorship per document of 2.28. The analysis of the main authors over the period considered (Figure 3) reveals that no author has been consistently productive over the period 1998-2022. However, some were productive during specific periods between 1998 and 2022. This is the case of Magadan-Diaz M. in the period 2018-2022, Benghozi P-J. between 2014 and 2019, Camarero C. between 2011 and 2019, etc. Our analysis 3 showed the top-ranked authors, i.e., those with the greatest impact (h-index and g-index) on the topics studied. The top three include Benghozi P-J., Camarero C. and Garrido MJ. with h-indices of 4 each. Fig. 4 shows the distribution of publications by years of the most productive authors between 1998 and 2022. It appears that no author has explicitly stood out in terms of the number of publications. However, the author who tops the ranking in terms of the number of publications is Magadan-diaz M. with 5 publications, three of which were published in 2021. This author works on new digital advances in publishing. He is closely followed by several authors with 4 publications each. They are Benghozi P-J. (innovation in cinema, media and publishing), Camarero C. (innovation in museum), Chen C.L. (sustainable innovation and innovation in performing arts), Garrido M.J. (innovation in museum), Lazzeretti L(innovation in museum), Li SCS (Innovation in television), Rivas-Garcia J.I. (Innovation in Publishing) , Sapsed J. (Technological innovation in creative industries).

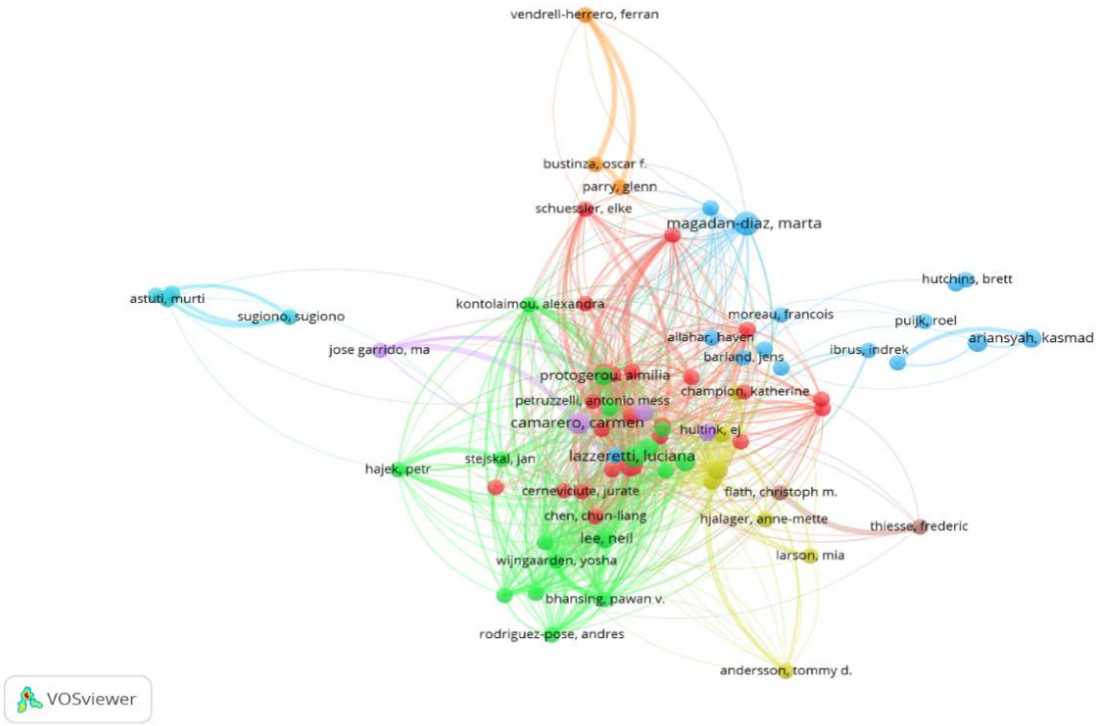

Figure 3. Authors' bibliographic coupling, which occurs when two works reference a common third work (processed using VOSViewer software)

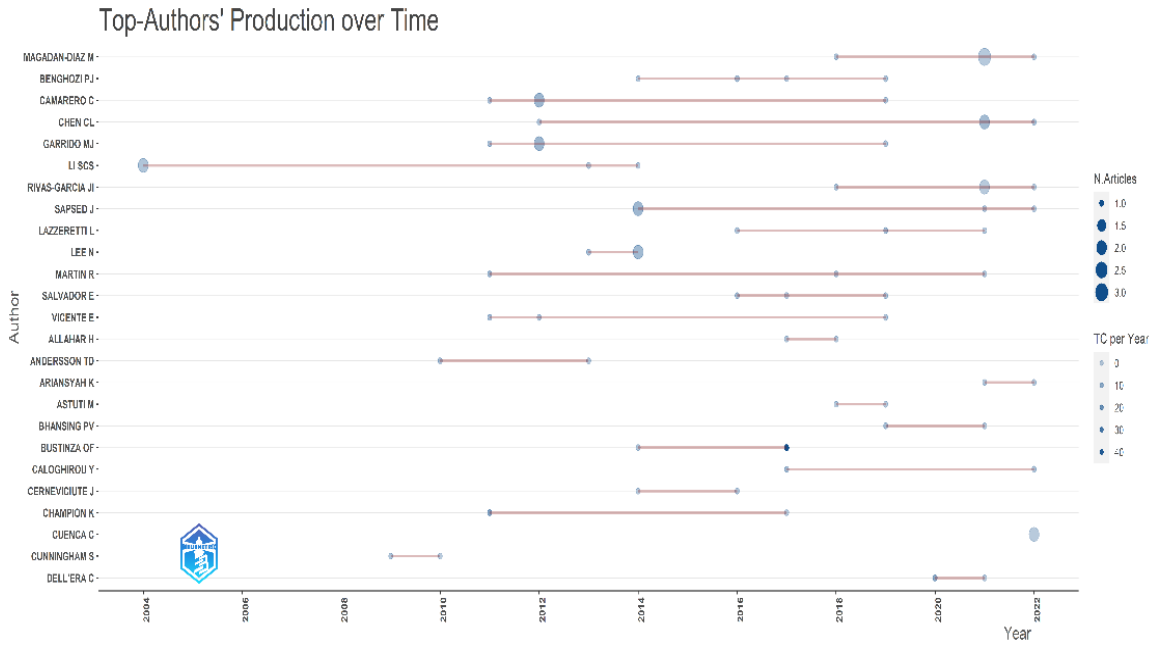

Figure 4. Top authors' production over time.

The most important network in terms of the number of publications on ICI is presented by Figure 5 which also shows the strength of the links between authors. It is based on authors' bibliographic coupling, which occurs when two works reference a common third work. Benghozi P-J. affiliated to Ecole polytechnique de Paris, has the highest co-citation link strength, 1976, followed by Salvador E.(University of Turin, Italy) and Simone J-P. (University of Poitiers) and Protogerou A. (National Technical University of Athens with respectively 1932 and 925 co-citation links. The Figure shows explicitly four well-defined groups (the lines indicate the concomitant citations between the authors). The color code that is automatically generated by the VOSViewer software allows to distinguish the different networks from each other. There are five important networks in Figure 5. The first network (blue) formed around Magadan-diaz M. (Universidad Internacional de La Rioja,). The second (purple) is led by Camarero C.(University of Valladolid). The third-largest network (green) is led by Lazzaretti L. (University of Florence) and the fourth network (red) is formed around Sapsed JD. (Newcastle University Business School.) The fifth-largest network is formed around Benghozi P-J. (Ecole Polytechnique de Paris).

The first network includes Mangematin V. (KEDGE Business School) and JI Rivas-García (Universidad Internacional de La Rioja). The authors of this network are mainly interested in innovation in the publishing industry. The second group (purple) includes researchers such as Vicente E. and Jose Garrido M (Universidad de Valladolid, Spain), Hultink EJ(Delft University of Technology). The authors of this network have interests in innovation in museum institutions. The third network (green) includes authors such as Martin R. (University of Gothenburg, Sweden), protogerou Aimilia(National Technical University of Athens), Rodríguez-Pose (London School of Economics), etc. The authors of this network are interested in innovation in the creative industries under a regional dimension. The fourth network consists of other authors such as: Verganti R.(Stockholm School of Economics), Dell'Era C. (Thinking for Business, School of Management - Politecnico di Milano), Svejenova S.(Copenhagen Business School), etc. The authors of this network are interested in the determinant of innovation in the creative industries. The fifth network is composed of authors such as Salvador E. (University of Turin, Italy) and Simone J-P. (University of Poitiers), Larson M.(Karlstad University), Hjalager A. M. (University of Southern Denmark), etc. These authors have common research interests in the digitization of the creative industries.

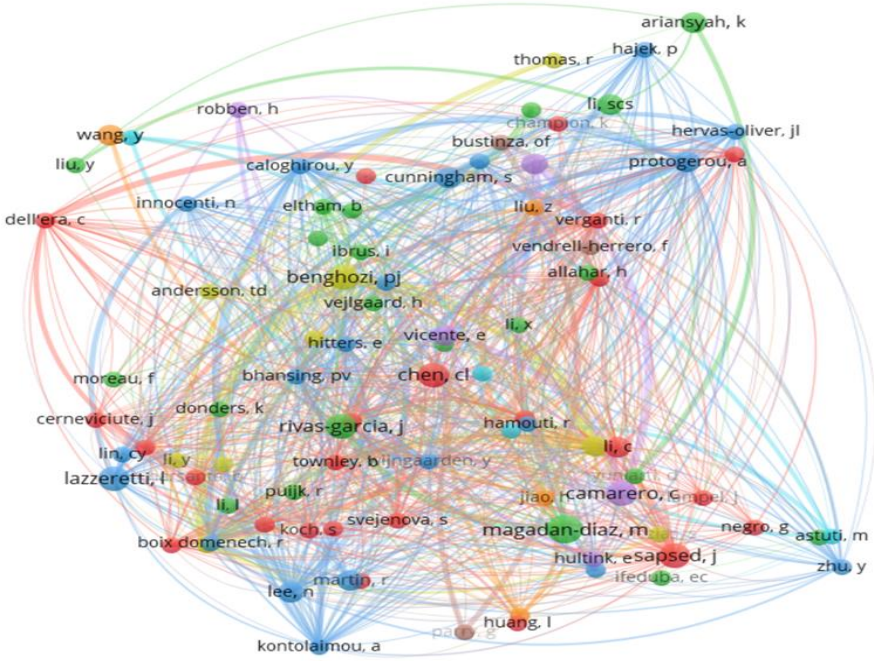

Figure 5. Map of most important authors based on each author's co-citation network (processed using VOSViewer software)

(2) Most cited and influential articles

The analysis of the most cited articles reveals that the article by Hotho & Champion (2011), published in *Management Decision*, is the most cited with 176 citations. This qualitative study helped to understand why companies in the creative industries are failing to grow. Based on the evolution of people management practices within the computer game industry, the authors conclude that effective management is necessary for successful innovation within them. Indeed, when innovation perspectives and the management practices needed to support them, they were divergent. An organizational context is created that leads to innovation failure. According to the authors, although the sector has high rates of business creation, the rate of business failure is equally high. The second most cited article is that of Zolkepli & Kamarulzaman (2015). This article published in the journal Computers in human behavior, makes a significant contribution in the area of social media adoption which according to the authors depends on three types of need categories (personal, social and tension release) which in turn are driven by the characteristics of the technological innovations of these media. The publication of Wijnberg, & Gemser (2000) in the journal *Organization Science* is the third most cited article. The authors concluded that in the visual arts industry, innovation has become the most valued product characteristic. The fourth article is Perretti & Negro (2007). This article published in the *Journal of Organizational Behavior* is a study, in which the authors develop hypotheses that, in film industry, the introduction of newcomers and new combinations of newcomers and oldcomers in teams shows positive relationships with innovation. The fifth article is Leyshon (2001) published in *Environment and Planning* A, the author looked at the relationship between technological innovation, economic competition and contestability of goods and services markets in the digital content era. He concludes that the irruption of new technologies, in the music industry has had impacts on the industry's digital content and value chain. We note that three of the five articles were published before 2010, one in 2011 and one in 2015. Yet, our analysis had highlighted that most of the articles were published recently, 353 of the 656 were published after 2015 and 1998 published in the last three years. This may explain the relatively low number of total citations, as about three to five years are typically required for a publication to develop high citation potential.

Research on ICI is conducted by various institutions and countries are reported in Figures 5 and 6. The most prolific institution is Erasmus Universiteit Rotterdam (11), followed by Queensland University of Technology (10), University of Tennessee and University of Valladolid (8), Arizona State University, Politecnico Milano, University of Gothenburg, University of Sydney and University of Valencia (7)(see Figure 6). These results are consistent with those of the most prolific researchers. A total of 732 universities in 51 countries have contributed to the ICI literature, indicating that this research topic has a global reach. The USA is the most productive country with 112 papers, followed by the United Kingdom (82), China (72), Italy (47), Spain (43), Australia (41), etc. Furthermore, as presented in Figure 7, publications in terms of single-country publications (or intra-country collaboration where all authors belong to the same country) are dominant. There are therefore very few publications from several countries (or inter-country collaboration where the authors belong to collaborations from different countries or to international collaborations). International co-authorships represent only 19.36% of the documents.

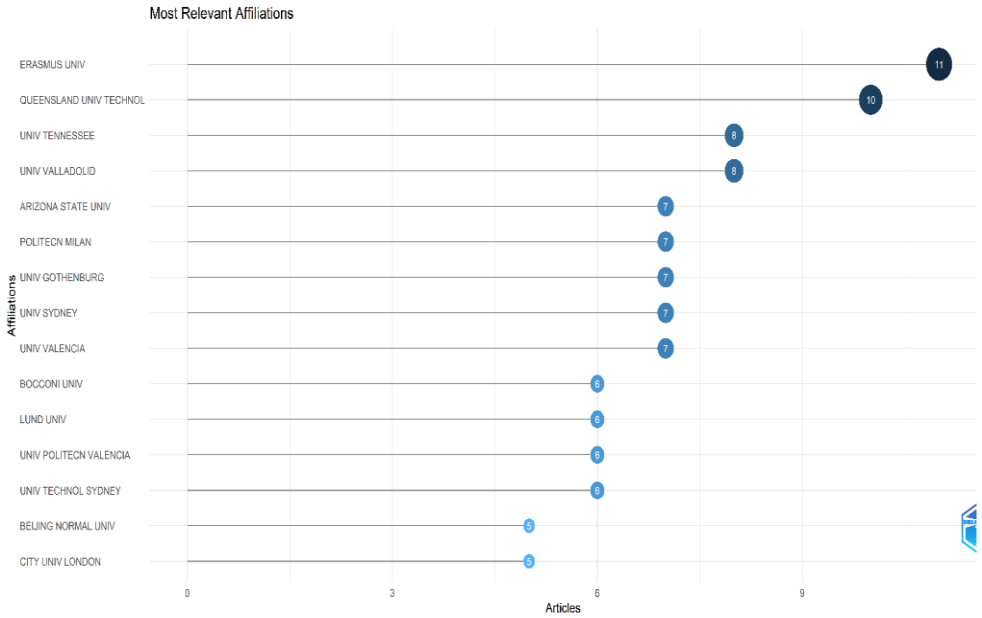

Figure 6. Most relevant Affiliations

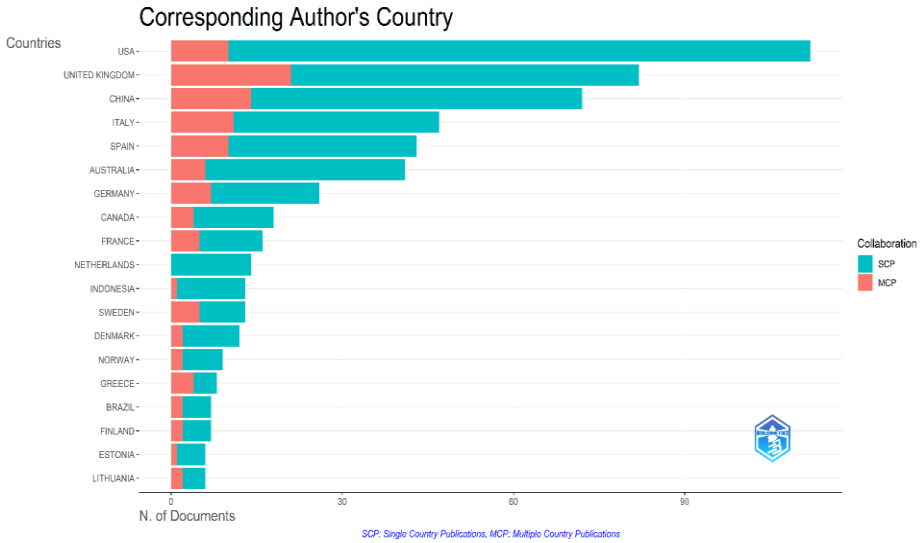

Figure 7. Authors per country, including single-country and multiple-country publications. SCP: Single-country publications, MCP: Multiple-country publications.

Figure 8 (a Sankey diagram) illustrates the flow of authors, countries, and search topics/keywords. This three-field diagram provides information about the most prolific authors for each country and the top search topics for each country. The left side of the figure shows the links between authors and country. For Spain, almost half less of the articles are published by the most prolific authors; the main contributors for the country are Camarero C. and Garrido M-J. from Valladolid University. For the UK, only a quarter was published by the most prolific authors in the field (Sapsed J, Lee N, Champion K, Andersson T-D., etc.). For some countries (USA, Canada, Portugal, Brazil, etc.), publications are made by non-leading authors in the field of ICI. For France, the most prolific contributors are Benghozi JP. and Salvador E. The right side of Figure 6 shows the relationship between countries and keywords. Figure 8 reveals that the most studied topic is innovation and that most of the studies were conducted in Spain, the United States, the United Kingdom. Innovation was the first topic in all countries. It has been associated with several other topics, the recurring ones being successively creative industry and creativity. The creative industries are the favorite topic of the English authors, while the museums are more. studied by the Spanish. Furthermore, advertising was studied more by Americans, while Chinese authors are the ones who are more interested in sustainability along with Spanish authors.

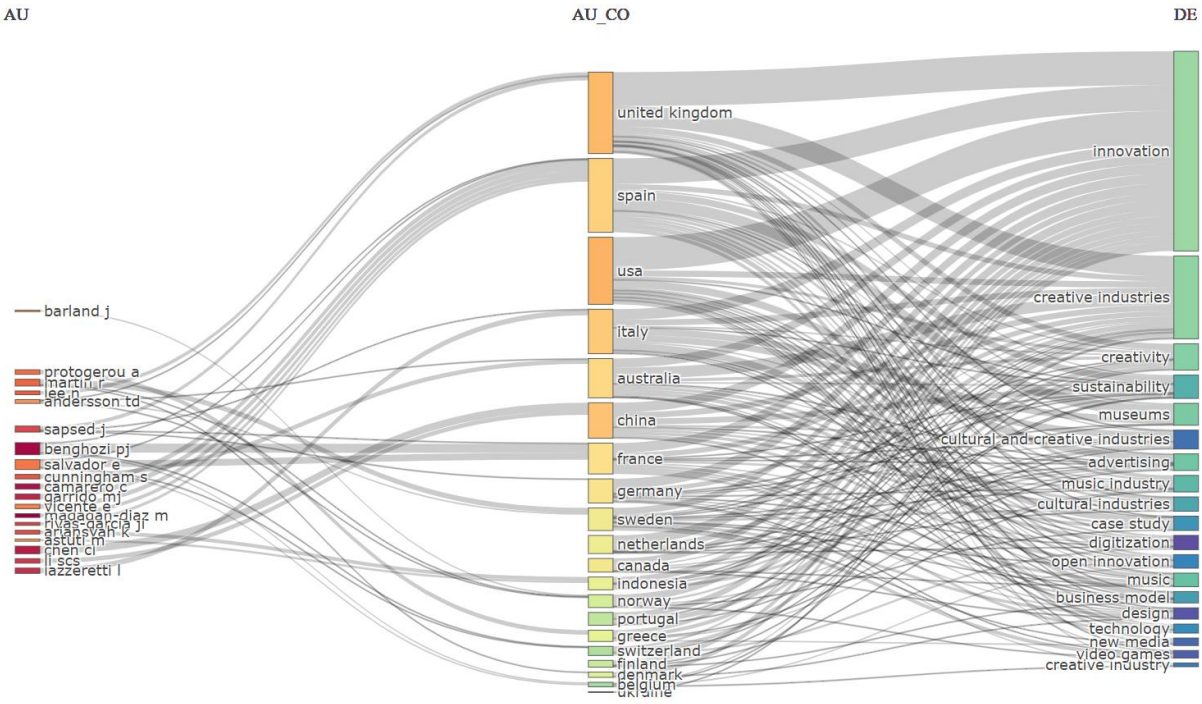

Figure 8. Three fields plot visualizing how authors, countries, and keywords are related through a Sankey diagram.

4.2. Science mapping

4.2.1. Keyword analysis

A total of 1999 keywords were identified in the 656 publications. 1716 words appeared only once, which represents 85.84% of the total keywords. Only 11 keywords appeared more than 10 times, i.e. 3.38%, and two keywords appeared more than 50 times, namely innovation (176) and creative industries (71). The frequent appearance of "creative industry" can be explained by the fact that the studies selected in our study are all about

the creative industries in general or their concerning components. Figure bellow showed the most frequent keywords bases on their occurrences.

Figure 9. WordCloud.

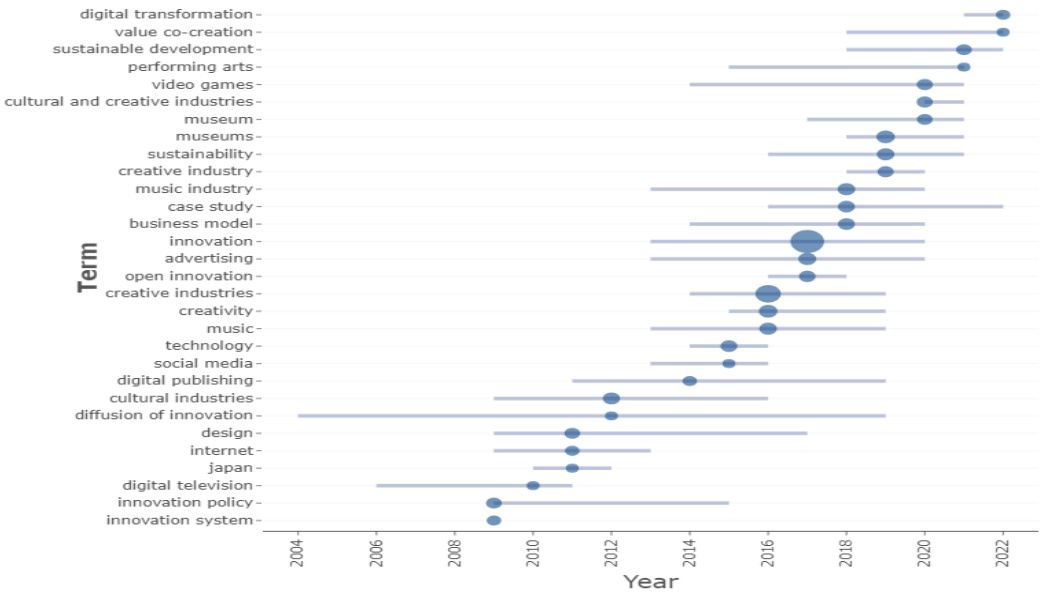

Figure 10. Trending topics based on authors' keyword frequency over time.

Figure 10 illustrates the evolution of the keywords over time. It shows that ICI has been studied mainly as a simple policy or a system innovation until 2010. From 2010 to 2015, researches have been more interested in "digitization", "technology". However, many developments have taken place over the past five years (2018-2021) with an increased occurrence of "innovation" "sustainability," "digitalization," and "co-creation" in last two years. "Business model" and "advertising" reached a peak in 2017; "museum" and "sustainability" reached a peak in 2019. Finally, "digital transformation" and "value co-creation", reached higher levels of occurrence since 2020.

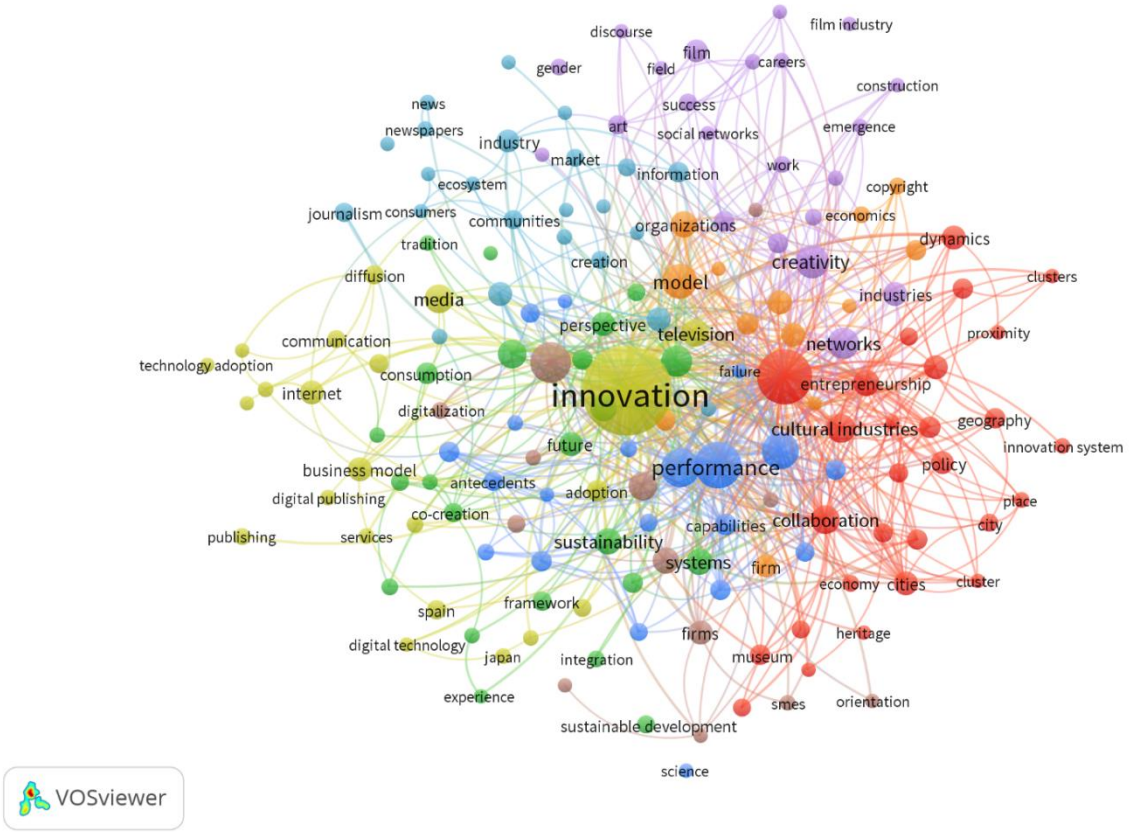

Figure 11. Conceptual structure based on authors' keyword network (processed using VOSViewer software)

Figure 11 allows us to observe the strength of connexions between keywords. Each connexion represents the relationship between two keywords (e.g., two keywords are considered co-cited when they appear together in the same subsequent manuscript). The size of the nodes reflects the frequency of the keywords. The larger is the node size, the higher is the frequency of the keyword. The top keywords per cluster are "innovation" (yellow cluster), "creative industries" (red cluster), "performance" (blue cluster) and "creativity" (purple cluster). The yellow cluster illustrates the links between "innovation", "creative industries", "collaboration" and "knowledge". This cluster is consistently explained by the fact that one of the sources of innovation is creativity. The red cluster shows connections between concepts such as "creative industries", "economy", "success", "business model" and "technology", as well as other connections (blue cluster) between "determinant", "growth" and "creative industries". These connections illustrate research findings on the positive link between innovation and economic performance of the creative industries.

4.2.2. Main research topics

Figure 12 shows a thematic map that illustrates a strategic diagram used to categorize the detected themes. According to Cobo et al, (2011), each centrality indicator refers to the importance of a theme in the development of the whole research field analyzed, while the density indicates the development of the themes. The size of the spheres depends on the number of articles containing the keywords. Four quadrants appear that capture different levels of centrality and density.

The upper right quadrant captures the driving or motors themes. It contains several themes including "museum" technological innovation, cultural innovation. Innovation in museums has been the focus of several

studies since 2010. The studies that have investigated innovation in museums have sought to identify the factors that promote the implementation of innovation in museum institutions. Authors such as Camarero C., Garrido M-J. has largely highlighted the fundamental role of technology (or digitalization) for innovation. Several other authors conclude that new digital technologies provide both unprecedented opportunities for innovation and growth in the Cis(see by e.g., Snowball. Tarentaal, & Sapsed 2022). The second group of themes presented in this framework includes "media", "publishing", "digital", "technology", etc. The innovation favored by the advent of new digital technologies within the media and publishing attracts the interest of researchers since 2015 (Magadan-diaz, 2018, 2022) etc. A third group of driving themes includes "performing art", "product innovation", "innovation management".

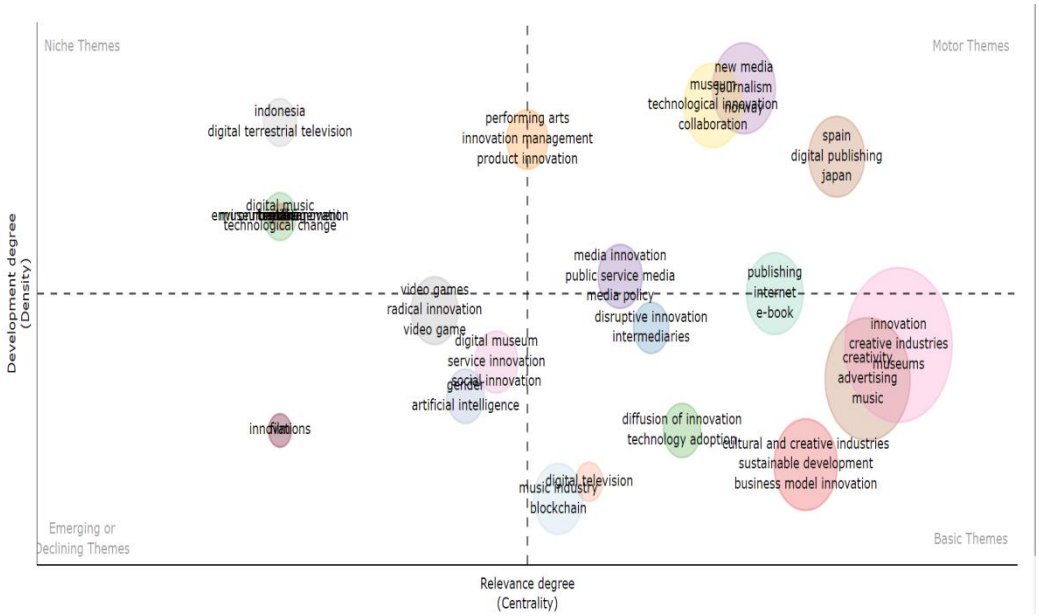

Figure 12. Thematic map based on co-word network analysis and clustering.

The themes in the lower right quadrant are basic and cross-cutting themes. As conclude by Knani, Echchakoui & Ladhari (2022), these themes are basic and transversal themes and represent central and undeveloped themes. This quadrant includes several groups of driving themes. The first group is related to innovation, to the creative industries in general without distinguishing a particular category of components, even if there is a slight tendency for museums. This stream of research consists of understanding the concept of innovation in the creative industries, its definition and typology. The most common research method in these studies is the case study. The second group contains the inputs of the ICI such as "creativity", "digitalization", "techonology", "copryright"; the components of the CIs such as "music", "diversiting", "television", "social media" and the outcome of the ICI: "performance". The aim here is to study the factors that determine ICI in specific CI categories and also to highlight its impact on performance. The third group of this framework gathers themes related to "cultural and creative industries", "sustainable development", "business model innovation" and its determinants such as "culture", "value cocreation", "absorptive capaticity", "aestistics", etc. The research flow related to this group aims at highlighting the role of these determinants in the development of new business models or the implementation of sustainable development strategies (see Niu, & Runmei 2022). For the next group, the research flow is related to the role of technology adoption in the diffusion of innovation. Then the last two groups, which are the least developed, are successively interested in the "blockchain" in "music industry" and the digitization of television.

The themes in the upper left quadrant are niche themes in the domain. They are specialized and peripheral in nature. They include the "Terrestrial digitization of television" which is a terrestrial television technology in which television stations broadcast content via radio waves to home television sets in a digital format. Another topic

identified in this quadrant is "environmental innovation" or environmental sustainability. Other themes are "digital music" and "music blockchain". Indeed, a whole literature on blockchain in the music industry has been developing over time.

Themes in the lower left quadrant are both weakly developed (low density) and marginal (low centrality). They are considered emerging themes (i.e., they could be the origin of a new trend in a new field), or disappearing themes (Knani, Echchakoui & Ladhari 2022). In our study, there are four groups of emerging themes. The first group is related to radical innovation in video games. The second group is related to the digitization of museums with "immersive technologies", "service innovation", and "social innovation" within CIs. The third group contains two themes namely "gender" and "artificial intelligence". The four and last group is related to innovation in films or cinemas. The development of literature on these different themes is still in its infancy and everything leads us to believe that it will develop considerably in the future.

5. Future perspectives

Innovation, through its contributions to the perpetual renewal of cultural goods and services, plays a key role in the promotion of CIs. It is ubiquitous in all categories of CIs and is referred to under a variety of concepts that reflect its multidimensional nature that takes into account its sources, the industries in which it takes place and its outcomes (Gohoungodji and Amara 2023). However, a review of the ICI literature reveals that it presents several research perspectives. Indeed, the advent of digital technology and its derivatives has accentuated the weight of innovation in CIs by making it easier for them to generate novelties. Experts and academics agree that technology applications are becoming more and more widespread in the majority of industries and will continue to take a larger share in the future. For example, blockchain Technology has been widely developed in the music industry (Arcos 2018; Chalmers, Matthews & Hyslop 2021). It provides a secure ledger stored in a decentralized way and has therefore important implications for marketing. Furthermore, the advent of streaming platforms in film and television (e.g., Netflix, Hulu) has shaken up the traditional market structure in these industries. This importance of technology should increase in the future with probably some new technologies. Furthermore, this expansion of digital and new technologies, such as artificial intelligence for example, has created another problem that has become a plague for the industry. This is the problem of "copyright" or "copycat" and specifically the phenomenon of piracy. This phenomenon requires a perpetual change in the management of the value chain of ICs. The phenomenon adapting to the evolution of technologies, the development of new management strategies should remain at the heart of the industry's concerns in the years to come. In addition, the creative industries are not on the sidelines of the profound changes linked to the consideration of environmental sustainability in the production of goods and services. Several cultural and artistic organizations are developing green innovations. Given the importance of environmental sustainability, future studies should further analyze the issues for its effective implementation in industries such as museums, fashion, festivals, etc. Finally, considering these actual changes and those coming, other forms of business model innovation are underway in the CIs and are currently attracting very little attention from researchers, for example, innovations related to "servitization" underway in museums.

5.1. ICI and AI

The literature focuses on the role of technology in ICI implementation with a recent development on the potential of AI. Indeed, recent research has shown that AI is increasingly entering the creative sector which is traditionally considered as the domain of human creativity. IA advance in the creative industries is changing the value chains not just in the technical aspects, but also in the creative, business and ethical dimensions (Amato, et al., 2019). Within the industry AI is widely adopted as a collaborative tool or assistant for creativity, supporting acquisition, production, post-production, interactivity, etc. However, there is no study on some issues that arise from

the use of AI within CIs. These include ethical issues, data security, data bias and broader social impact (Welser et al. 2018), the relationship between AI and creativity (Anantrasirichai & Bull 2021). Studies must also investigate issues about data Capacity of ICs. For example, are there need for specific data skills (upskilling and new talent)? Regarding business models, there is a need for understanding how data can be harnessed in new ways to create added value.

5.2. ICI and Copyright

In the creative industries the global advances in digital means of production and delivery, new technology for consumption of content, and digital communications with audiences, have transformed as well as the people's practices in the sector. From the perspective of ICI, questions about the role of copyright still need to be clarified. Indeed, the literature has shown that in certain circumstances, piracy, often perceived as a barrier, can catalyze ICI, facilitating access to information produced by other organizations; this is the paradox of copying (Cappetta et al. 2006; Raustiala and Sprigman 2006). However, from a legal point of view, copyright pose issues, particularly from the point of view of commercialization. The non-respect of copyright does not allow the original producer to profit from his work as it should. In the U.S.A. for instance, music industry artists captured 12% of music revenues in 2017 (CitiGPS 2018). However, the irruption of digital technology seems to change the situation. Proponents are increasingly using open copyright models (Chen 2021; Montgomery & Fitzgerald 2006) or technologies advance to adapt the piracy realities. New technologies such as blokchain technologies (by e.g., smart contracts and non-fungible tokens (NFTs) used to codify the rules of sales, usage, and licensing (Malik, Wei, Appel & Luo 2022). However, we know little about the base of these copyright models. Future studies need to investigate further not only the business models behind this change in copyright management but also blokchain technologies to secure ICs relevance.

5.3. ICI and Sustainability

As all organizations around the world, ICs are undergoing profound socio-economic and technological changes necessary to achieve an environmental sustainable. These changes are reflected in the implementation of innovations that are environmental sustainable (Gohoungodji et Amara 2024, Hao et al. 2023). Recent literature presents the cultural and creative industries as a driver of innovation and sustainable business development in a cross-innovation process (Gerlitz & Prause 202, Klein, Gerlitz, & Spychalska-Wojtkiewicz 2021, Zheng et al. 2022**).** Future research should go beyond studying the relationship between ICs and sustainability and examine, for example, the determinant or the success factors of green practices implementation in CIs. Furthermore, as the implementation of the circular economy spreads to all sectors of activity (Chedrak et al. 2023), future ICI studies must investigate the issues related to innovation in the creative industries in the circular economy era.

5.4. ICI, Servitization and Gender

While CIs are not considered a natural part of the service sector, they are confronting a set of emerging dynamics in which servitization plays a leading role (Sundbo, Rubalcaba & Gallouj 2021). Through servitization, ICs move toward a new value creation by transforming traditional business models. In other words, with servitization, CIs possesses the ability to innovate through the evolution of entirely new creative services and market niches (Martin and Sunley 2017). However, a little study has been devoted to servitization in ICs. As conclude by Sundbo et al. (2021), further research could, for example, emphasize the co-creation aspect, which is about the created value for customers and how much-added service elements mean for that.

Concerning gender, Protogerou et al. (2017) conclude that team diversity in terms of gender appear to have a marginal but negative impact on product innovation. They justify this finding by stating thatThey suggested that women's representation in the entrepreneurial teams appears to introduce increased risk aversion (e.g. Eckel and

Grossman, 2002) which may hinder innovation. This conclusion needs to be re-examined, and the contours of gender importance in the ICI need to be further investigated. For example, are the creative industries run by women more innovative than those run by men?

6. Conclusion, theoretical contributions, and limitations

Studies on ICI have proliferated in recent years. Therefore, this article is timely as it includes a bibliometric review and analysis of this body of research. It contributes to existing research by providing information on ICI and informs future research directions. First, it quantifies the main indicators related to the literature published in the field, ranks the main contributors, namely influential authors, universities, countries and journals; second, the study organizes the existing literature by identifying the occurrence of keywords, engine themes, emerging themes and core and cross-cutting themes; third, it proposes perspectives and avenues for research. The results show the increase in publications in this area, especially in the last three years. Our analyses reveal the driving role of journals such as Sustainability, publishing research quarterly, technological forecasting and social change. The study also identifies the most productive institutions and countries (USA, United Kingdom, China, Italy, Spain). It illustrates the author network and keyword connections, each comprising four groups. The study includes a thematic map that highlights four categories of research in the field: and keyword networks and also includes a thematic map that highlights four types of research: motor themes (e.g., digital technology, cultural innovation, performing art, product innovation, innovation management); basic and transversal themes (e.g., creativity, digitalization, techonology, copryright); emerging themes (e.g., gender, artificial intelligence, sustainability); and specialized and peripheral themes (e.g., gender, digital music). Despite a growing interest in ICI, much remains to be explored. Therefore, our research study presents some future perspectives on ICI and proposes four areas that merit further study. In addition, our study is the first bibliometric study to examine the state of knowledge of ICI. It provides visualizations of research networks and reveals the intellectual structure of the research. Finally, the future perspectives identified in this study will help actors involved in promoting the creative industries, particularly political decision-makers, to know which are the promising areas in which to direct their cultural policies to ensure the promotion of the sector in future.

Nonetheless, this study has some limitations. The first concerns the quality of our data. Indeed, as concluded by Donthu et al. (2021) data from Web of Science are not exclusively destined for bibliometric analysis. Therefore, if even we carefully clean the bibliometric data which are from Web of Science, the study can contain some errors that may affect our analysis. The second is about the qualitative assertions of bibliometrics which can be, according to Wallin (2005), quite subjective given that bibliometric analysis is quantitative in nature, wherein the relationship between quantitative and qualitative results is often unclear. However, these limitations do not call into question the results of our analysis.

Furthermore, while ethical concerns pertaining to bibliometric data collection and analysis arise due to the possible abuse of obtained data, our study don't present any potential for misuse and the compromising of privacy in the use of obtained data. The data used are legally download from Web of science and there is any ethical concern their analyze.

Funding Statement

This research received no external funding.

Conflict of interest

The author claims that the manuscript is completely original. The author also declares no conflict of interest.

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