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Master Program in Statistics and Information Management

Trends in the scientific production on Intangible
Cultural Heritage, a bibliometric analysis

Filipa Castilho Mendes Godinho

Dissertation presented as partial requirement for obtaining
the Master's degree in Statistics and Information
Management

NOVA Information Management School
Instituto Superior de Estatística e Gestão de Informação

Universidade Nova de Lisboa

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Student
full name

Filipa Castilho
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**Trends in the scientific production on Intangible Cultural Heritage, a
bibliometric analysis**

by

Filipa Castilho Mendes Godinho

Dissertation presented as partial requirement for obtaining the Master's degree in Statistics and Information Management , with a specialization in Analysis and Information Management

Advisor: Bruno Damásio

Co Advisor: Sandro Mendonça

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ABSTRACT

The amount of scientific production regarding Intangible Cultural Heritage has been growing at a fast pace in the last two decades. However, there is a lack of global view about the research conducted on this topic. The purpose of this study is to identify and assess the research trends in Intangible Cultural Heritage scientific production, and present the intellectual, conceptual and social structures in the main levels of analysis: sources, authors and documents. A bibliometric analysis is performed for a comprehensive sample of 626 articles within the period of 2007 to 2020. The bibliometrix R-tool was used to perform this analysis, where the metadata of the database Web of Science was retrieved. The results of the study show two main branches of research, driven by social topics and sustainability concerns. These two branches are reflected in the co-citation networks, authors' collaboration and co-word analysis. While research on Intangible Cultural Heritage has been performed in all continents, results show poor levels of networking and collaboration. In conclusion, research about Intangible Cultural Heritage is solidifying despite the increase of themes appearing. Indeed, most of the themes end up falling within the two main branches of research. This study can be an opportunity for stimulating future research in this field or related ones by offering an overview of Intangible Cultural Heritage research over time.

KEYWORDS

Intangible Cultural Heritage; Bibliometric Analysis; Bibliometrix; WoS

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LIST OF ABBREVIATIONS AND ACRONYMS

ACA	Author Co-citation Analysis
CC	Co-citation Cluster
Coll	Collaboration Cluster
FR	Fractionalized production of articles
H	H-index
ICH	Intangible Cultural Heritage
ICOMO	International Council on Monuments and Sites
JCA	Journal Co-citation Analysis
LC	Local Citations
MCP	Multi-Country Publication
MD	Mediterranean Diet
P	Production of Articles
R	Ranking
SCP	Single-Country Publication
TC	Total Citations
TCY	Total Citations by Year
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNWTO	United Nations World Tourism Organization
WoS	Web of Science

1. INTRODUCTION

Intangible Cultural Heritage (ICH) constitute oral traditions, performing arts, rituals, and festive events that have been transmitted over generations and are therefore recognized by communities as part of their cultural heritage (UNESCO, 2003). The UNWTO enhances the importance of intangible heritage in empowering different groups to affirm their cultural identities in order to maintain the world's cultural diversity (UNWTO, 2012). Kuutma (2011) considers that cultural heritage offers individuals the opportunity to acquire access to social and political capital, and provides channels for economic resources.

There has been a significant increase in research about ICH over the past two decades. With this increase in research, it becomes hard to remain up to date with everything that is being published. It is therefore considered that it is important to organize the past findings in such a way to unveil the relationships of the studies.

Consequently, the aim of this study is to identify the trends in ICH publications over time, taking into account the three key pillars of scientific production: who writes about ICH (authors), how is this research published (sources), and what was studied (documents). With this objective, a bibliometric analysis was performed using the R-tool bibliometrix and the source Web of Science (WoS). The major contribution of this study is the identification of the main branches and the most consistent themes of research over time, which can be very useful for future research.

This study is structured as follows: in a first stage a literature review about ICH is shown, to have a better understanding of this field. Secondly, a methodology is presented, describing the data collection and analysis. This is followed by the main results obtained both in the descriptive and bibliometric analysis, accompanied by a discussion of the same. And finally a conclusion is presented with study limitations and opportunities.

2. LITERATURE REVIEW

The first drafted document regarding ICH goes as far as 1971, providing some guidelines for the protection of folklore (World Intellectual Property Organization, 1978). Many conferences, round tables and meetings were needed for the UNESCO to finally adopt the International Convention for the Safeguarding of Intangible Cultural Heritage (i.e., the Convention) in 2003 (Aikawa, 2004).

Giudici (2013) defines ICH as the living culture of human groups and communities. Indeed, according to the professor, the knowledge and know-how transmitted generation after generation in interaction with their environment is what defines ICH. We can therefore understand that ICH is two-fold: in one side we have the core values that perdure and constantly reflect the cultural identity of their holders. On the other side, we have the flexible ICH which gets modified and shaped by the historical and social context over time.

The later raises an important issue concerning the vulnerability of ICH (Lenzerini, 2011). Indeed, since ICH has an evolving nature, it can easily adapt to historical and social conditions. Moreover, as ICH is transmitted from generation to generation, its survival is dependent on the older generation's will to hand it down, most of the times by oral transmission.

In an age where globalization is uncontrolled, the identity of people is at risk of being absorbed by the dominant society. This is why the UNESCO encourages those who cultivate local traditions and identify them as a community (Krasojević & Djordjevic, 2017). In fact, in the 2003 Convention, the UNESCO enhances the importance of intangible heritage in empowering different groups to affirm their cultural identities in order to maintain the world's cultural diversity (UNWTO, 2012).

2.1. AUTHENTICITY IN ICH

Many scholars have focused on *authenticity* when studying about ICH. Authenticity is a central concept in heritage story, it means authoritative and original (Lowenthal, 1995). It has been at the core of the UNESCO and ICOMO's (International Council on Monuments and Sites) discussions (Smith, 2006).

According to Reisinger and Steiner (2006), there are two views of authenticity. One of them is related to human attributes and the other to genuineness of artefacts and events. In what regards human attributes, authenticity refers of someone being true to himself and to his beliefs and true nature.

García-Almeida (2019) argues that young individuals who receive knowledge transfer (of ICH) are faced with two different forces when viewing authenticity. Similarly to the two-fold of ICH, young individuals may view authenticity as the desire to evolve and being exposed to new cultural environments, or to view authenticity and have the will to maintain the values and cultural elements that the predecessors have embedded in the past.

Moreover, in intangible heritage destinations, locals with traditional knowledge have been faced with socio-economic dynamics which endanger the authenticity of knowledge. (Zhu, 2012). In fact, Zhou et. al (2015) argue that authenticity is a concept that often is brought up when confronted with its opposite. In other words, it is when a destination is progressively deemed “inauthentic” that authenticity comes up, as it is considered lost or modified, which then causes tension within the local population.

Some scholars strongly defend the need of thinking about authenticity in regard to the changing ICH (e.g. Lloyd, 2009; Su, 2019). However, even though we see a true engagement towards authenticity in some countries, namely China, the same cannot be said about the UNESCO. In fact, when the term ICH was initially formed in UNESCO in 1998, authenticity was removed from UNESCO’s ICH related documents (Blake, 2009). The agency clearly stated in the Yamato Declaration (2004) that authenticity should not be considered relevant when identifying and safeguarding ICH because ICH was constantly recreated (Jokilehto, 2006; UNESCO, 2004).

2.2. ICH WITHIN TOURISM

Nevertheless, looking for authentic experiences has been one of the important trends in tourism (Kolar & Zabkar, 2010). The relationship between tourism and ICH is very strong because cultural tourism, which addresses the experience of both tangible and intangible cultural heritage, is an increasingly extended segment that allows a correct sustainable development, and therefore, a sustainable cultural tourism (UNESCO, 2007).

Filipović (2018) argues that tourists are more and more interested in different cultures, performing arts, crafts, rituals, gastronomy and interpretations of nature and the universe. Indeed, in his research, Filipović found that ICH positively influences the choice of a tourist destination. This is why, despite the globalization, countries want to differentiate themselves by enhancing their cultural diversity (Krasojević & Djordjević, 2017), namely ICH. Most of the developed countries promote their cultural heritage in order to boost their tourism development (Filipović, 2018).

There is proof of positive effects in the sustainable development of tourism by engaging elements of ICH in the supply of tourist destination (Lovrentjev, 2015). In fact, for the destination, ICH contributes to the development of complementary tourist products and/or activities, it brings higher revenues to the local community, and it contributes to higher employment rates in the local community. Moreover, as the tourists valorize ICH, it increases tourist spending, it contributes to the prolongation of tourist stay, it attracts tourists out of the high season, and it increases tourists' satisfaction.

Despite all the benefits that ICH brings to tourism sustainability and therefore to the socio-economy of destinations, there is still the other side of the coin that shows the negative effects of tourism in ICH and destinations.

One of the words that often appears in ICH-related publications is *commodification*. Wanda George (2010) explains that commodification of culture for tourism occurs when a population's culture developed over decades, sometimes centuries, created in a spontaneous manner and being the essence of the everyday life of that population, becomes the fruit of exchange value for tourists' consumption. Therefore, the population's culture gets transformed and recreated as something totally different than it was initially.

Figure 1 shows how commodification happens over time. In fact, between 1750 and 2000 culture such as language, music, customs, and architecture is solely for the population. However, as of the year 2000 the culture is changed and transformed to be a tourism product. Wanda George's studies show that this trend will continue in the future. We now fear that if the commodification of the culture remains, it may happen that the essence of the culture, its authenticity, will vanish.

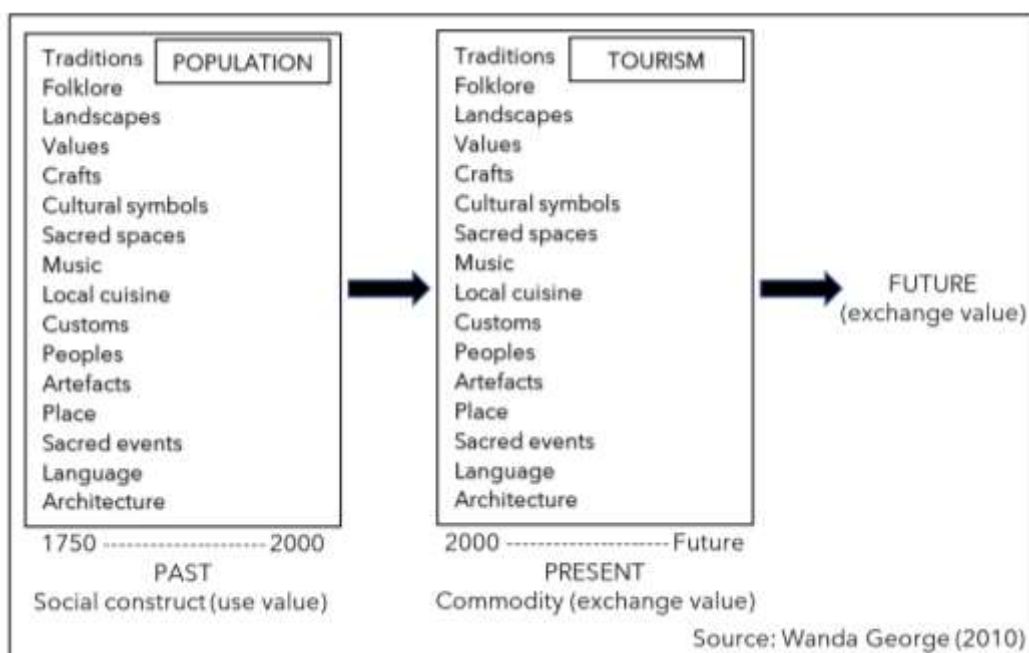


Figure 1 Commodification of cultural heritage for tourism.
Source: Wanda George (2010)

Since the UNESCO Convention of 2003 was issued, many scholars have studied the tension between the safeguarding and the commercial use of ICH (e.g. Katelieva et al., 2020; Lixinski, 2001; Su, 2020), but also issues such as cultural appropriations or exploitation of indigenous ICH by “outsiders” in the tourism industry.

Scherrer and Doohan (2011) showed how tourism has damaged the Kimberley coastal region of Australia. They defend that the western Eurocentric framework has erased the indigenous people’s worldviews and relationships, and their spaces are now considered as landscapes rather than “culture-scapes”.

Wanda George (2010) argues that when tour operators carry hundreds of tourists through the local communities and for the tourists to observe the culture, local countryside, and intangible heritage, little if any of the profits made by the operators directly benefit the local communities.

Many recent studies, however, have defended that the capitalization of heritage brings many benefits to the local communities (e.g. Lopez-Guzman & Santa-Cruz 2016; Travesi, 2017; Ursache, 2015). The authors consider that this capitalization helps revitalizing, valorizing and preserving ICH, as well as raising awareness about the social and cultural values and therefore contributing to the local pride and identity.

To conclude, ICH is the result of the contact with nature and history, and it offers communities a sense of identity and continuity (ICOMOS, 2003). What is important about ICH is not the product itself (Lixinski, 2013), but instead it is its creative and continuous commitment with the past and its reflection on contemporary identities (Alivizatou, 2012a). Even though there is a lot of discussion about whether tourism has improved or worsened the preservation of ICH, we consider that with caution, tourism may beneficiate ICH and destinations.

2.3. BIBLIOMETRIC STUDIES IN ICH

There has been a solid increase in ICH-related publications since the UNESCO Convention of 2003. With this increase in research, we would expect to also have some bibliometric analysis about the field, in order to better understand the trends, the main domains studied, have an understanding of which scholars and institutions have studied the field, and get an overall “big picture” about ICH. However, so far there has only been one paper published on this matter (Su et al., 2019), which makes it hard to remain up to date with everything that is being published.

The results of this study showed that there has been a clear increase in research on ICH since 2011. However, there has not been a substantial collaboration between researchers or countries. In fact, the countries that published the most papers on ICH have been developed countries such as United States, Australia, United Kingdom or Spain, whereas the developing countries (except for China) have not put much effort in this matter (Su et al., 2019). Finally, this study also showed that the research has mainly been focused on heritage itself, rather than its use and sustainable development; but in recent years, there has been an increase in the studies of internationalization of heritage.

These results are a good baseline for our study. However, we hope to find more information, as in the previous study only 249 papers were considered for the analysis. Moreover, we will not use the tool CiteSpace but instead bibliometrix by R. This tool will allow us to work with a different science mapping workflow; we therefore expect to produce new knowledge on the scholarly literature.

3. METHODOLOGY

This study will be done through a bibliometric analysis. According to Bellis (2012), a bibliometric analysis is defined as a scientific computer-assisted review procedure that analyzes all the publications of a specific topic or field and identifies their authors as well as their relationships. It has the potential to produce a methodical, transparent and reproducible review process based on the statistical measurement of science, scientists or scientific activity (Broadus, 1987; Diodato, 1994; Pritchard, 1969). As the amount of information increases, so does the usefulness of bibliometrics, as it provides a structured analysis of all the information regarding a specific field.

Cobo et. al (2011) defend that bibliometrics have two main uses: performance analysis and science mapping. Performance analyses are made to evaluate groups of specific *actors* and the impact of their activity on the basis of bibliographic data. Science mapping in the other hand are made to show the structure and dynamics of scientific fields. This evaluation and structure is useful when the researcher's objective is to review a particular line of research (Zupic & Čater, 2015). In fact, bibliometrics are able to provide a quantitative perspective to the subjective evaluation of literature.

Börner et. al (2003) argue that the most common units of analysis in science mapping are documents, cited references, journals, authors (their affiliation can also be used), and descriptive terms or words. These words are taken from various places in the publications: title, abstract, body of document, document keywords, or a combination of these places.

This study was established taking into consideration three levels of analysis: sources, authors and documents. Depending on the level of the analysis, this study aimed at unveiling the most productive or cited items and then identifying the different topics at each level. On a second stage, different structures of knowledge were performed using different bibliometric methods. The intellectual structures were used to understand how certain publications influenced research, the social structures to understand the collaborations between authors and countries, and finally the conceptual structure was used to analyze the evolution of themes throughout the period under study.

The analysis was made using the bibliometrix R-tool (Aria & Cuccurullo, 2017), that provided tools for a quantitative research in bibliometrics and scientometrics. R provides an open-source environment and ecosystem; it is one of the most powerful and flexible statistical software environments.

3.1. DATA COLLECTION

The database chosen for the collection of articles was (WoS), which has the oldest and most comprehensive records of citation indexes.

The first stage consisted in collecting the database. The search criteria used for the identification of documents in WoS used specific terms and Boolean operators:

“Intangible Cultural Heritage”
OR Intangible NEAR/10 “cultural heritage”

It is noteworthy that the search included words within quotation marks in order to retain the combined meaning of the words. Moreover, the Boolean operator NEAR was used with the objective to find documents where the terms “intangible” and “cultural heritage” were separated by only 10 words. Finally, the Boolean operator OR was used to find either the first or the second option within the WoS database. A total of 2021 documents obtained.

In a second stage, using both the WoS database and in the R software, some records were excluded (Figure 2):

- All publications from 2021 since at the time of research the year had not finished (222 documents excluded)
- All publications that were not in English (316 documents excluded)
- All publications that were not articles (785 documents excluded)
- All publications that did not have abstracts (72 articles excluded)

The final database includes 626 articles that mention “Intangible Cultural Heritage” in either the title, keywords or abstract (Figure 2).

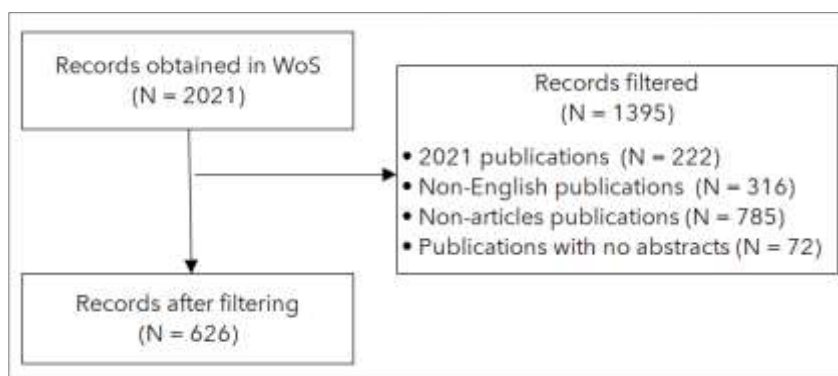


Figure 2 Data collection diagram.

Source: author's compilation

3.2. DATA ANALYSIS

The bibliometric techniques were performed using intellectual, social and conceptual structures at every level of analysis (Table 1).

Level of analysis	Metrics	Unit of analysis	Bibliometric technique	Statistical technique	Structure
Source	Source dynamics Most productive sources	Journal	Co-citation	Network	Conceptual
Authors	Most productive authors Annual production per author	Authors	Co-citation Collaboration	Network	Intellectual Social
Documents	Most cited documents Most frequent Author Keywords and Keywords Plus	Countries References Authors Keywords and Keywords Plus	Co-citation Collaboration Co-words	Network Thematic mapping Thematic evolution	Intellectual Social Conceptual

Table 1 Specification of analysis.

Source: author's compilation based on Aria & Cuccurullo (2017)

Co-citation analysis uses co-citation counts to build measures of similarity between documents, authors, or sources. Small (1973) defines co-citation as the frequency with which two units are cited together. An important assumption of co-citation is that the more a unit is cited together, the more likely it is that its content is related. Moreover, when two documents have a strong co-citation strength, they are also often cited individually.

Co-author analysis measures the research collaboration in articles (Kumar, 2015). Acedo et al. (2006) argue that co-authorship is the most formal expression of intellectual collaboration in scientific research, as it contains the contribution of two or more authors in the creation of a study, which leads to a scientific output of a greater quality or quantity than could be achieved by an individual. Moreover, the analysis can be used to identify collaboration at cross-national level (Glänzel & Schubert, 2004). In the co-author networks, the nodes are either the authors or the countries, and the links are the co-authorship.

Table 2 represents the specification of co-citation and collaboration networks related to each of the three levels of analysis. The clustering method used was Spectral Clustering which made use of spectrum (eigenvalues) in 3 main steps: firstly to conduct a similarity graph, then to perform dimensionality reduction and finally to cluster the data (Luxburg et al., 2008).

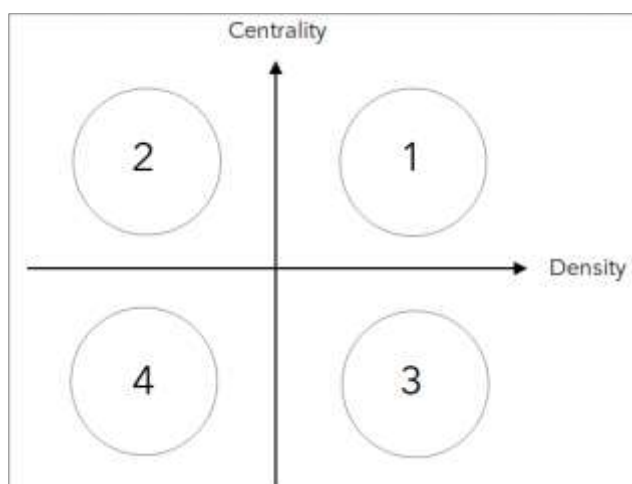
	Collaboration		Co-citation		
	Authors	Country	Sources	Authors	References
Clustering	Spectral	Spectral	Spectral	Spectral	Spectral
Nodes	100	30	50	100	70
Minimum Edge	2	2	2	2	2
N° of labels	30	30	20	50	30

Table 2 Specification of collaboration and co-citation networks.

Source: author's compilation

Co-word analysis is explained by An & Wu (2011) as a kind of content analysis method, which main procedure is to count the times of occurrence of a term in the same articles. The aim is to establish relationships and build a conceptual structure of the domain. Similarly as in the co-citation method, here an important assumption is that when words frequently co-occur in documents, it means that there is a high relation in the concepts behind these words. In order to understand the evolution of themes, Cobo et al. (2011) suggest performing a co-word analysis in different sub-periods.

The results of the co-occurrence of words can be measured by two ways: the density and centrality. The density represents the cohesion within a cluster (its development), and the centrality the extent of interaction of the cluster with others (its relevance) (Cobo et al., 2011; Callon et al., 1991). [Figure 3](#) shows the strategic diagrams with four quadrants. Quadrant 1 will contain the motor themes, which are generally themes that appear often, that have been present for a long period and that are used by a well-defined group of researchers. Quadrant 2 will contain the niche themes; these can be a prospect of motor themes or can fall into the different but connected themes. Quadrant 3 will contain the basic themes; these can be considered as themes that previously were motor but with time became disregarded. Finally Quadrant 4 will contain the emergent themes.



[Figure 3](#) is a strategic diagram that measures the co-occurrence of words in density and centrality. The higher the density the higher the cohesion within a cluster, the higher the centrality the higher the interaction of the cluster with others. The quadrants in the strategic diagram define the themes as follows: 1 - motor themes; 2 - niche themes; 3 - basic themes; 4 - emergent themes.

Figure 3 *The strategic diagram.*

Source: author's compilation based on Callon et al. (1991) and Cobo et al. (2011)

It is important to note that the size of clusters in the strategic diagram are proportional to the words that it contains, and that the name of cluster represents the most repeatedly used word within the cluster. In this analysis, the authors keywords were used as a unit of analysis, since there was a larger quantity and variety of authors' keywords compared to keywords plus.

Cobo et al. (2011, pp. 152) define a thematic “as a group of evolved themes across different sub-periods. Depending on the interconnections among them, one theme could belong to a different thematic area, or could not come from any.” The link between two sub-periods is made up of the keywords in common and the “thickness” of the link is proportional to the inclusion index. The later can be between 0 and 1, where 1 means that all the words included in a cluster in one sub-period are also in another cluster in the other sub-periods. In this study, the minimum inclusion index is 0.1.

This study which has articles from 2007 to 2020 was divided into 3 sub-periods: Sub-period A: 2007-2012; Sub-period B: 2013-2016; and Sub-period C: 2017-2020.

It is noteworthy that a cluster in sub-period A can be associated to a cluster in sub-period B with another label. This is because in the strategic diagrams, the labels correspond to the most frequently used word within the cluster.

4. RESULTS AND DISCUSSION

4.1. PRODUCTION

According to the scientific production from 2007 to 2020 (Figure 4), the amount of articles published on ICH have grown at an 89% growth rate. There was a first publication in 2007, but 2013 marked the beginning of a steady growth. Over these 14 years, 1'272 authors published 626 articles in 324 different sources (Table 3). Over half of the documents were co-authored, leading to an average of 2.03 authors per document. On average, each of the articles was cited 3.8 years after being published and has an average of 1.1 citation per year.

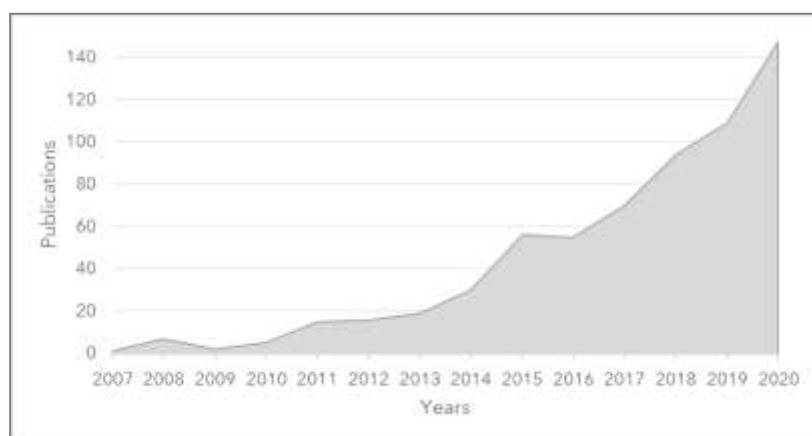


Figure 4 represents the annual scientific production of articles from 2007 to 2020. Besides from years 2009 and 2016, there has been a clear growth in the amount of production, leading to an 89% growth rate.

Figure 4 Annual scientific production.

Source: author's compilation

Main information about data	
Timespan	2007:2020
Sources (Journals, Books, etc)	324
Annual percentage growth rate	89%
Documents	626
Average years from publication	3.8
Average citations per documents	6.594
Average citations per year per doc	1.142
References	22603
Document types	
Articles	626
Document content	
Keywords Plus (ID)	724
Author's Keywords (DE)	2403
Authors	
Authors	1272
Author Appearances	1440
Authors of single-authored documents	269
Authors of multi-authored documents	1003
Authors collaboration	
Single-authored documents	301
Documents per Author	0.492
Authors per Document	2.03
Collaboration Index	3.09

Table 3 Main information.

Source: author's compilation

4.2. SOURCES

The scientific production by source is represented in [Table A1](#). Naturally, the two sources with the highest production are directly related to heritage, the first being specifically about intangible heritage. In fact, the *International Journal of Intangible Heritage* published 8.6% of the total publications, followed by the *International Journal of Heritage Studies* with 6.5% of the total publications.

With regards to the total number of citations, the *Journal of Cultural Heritage* was the most cited source with 423 citations, even though it fell in the fifth position of productivity with 11 publications. Taking into account the H-index, the journal that ranked second was the one with the highest number. In fact, the *International Journal of Heritage Studies* had 12 publications that were each cited 12 times.

According to the Source dynamics which indicate the progress of the sources according to their publications on ICH ([Figure 5](#)), the evolution of the eleven most productive sources can be divided into three subsets:

- The *International Journal of Intangible Heritage* and *International Journal of Cultural Property*, which initiated the publications from the first years and continued to grow throughout the whole period studied.
- The *Sustainability* journal, which began production at a slow pace but presented a remarkable steely production, reaching a cumulative of 30 publications in 2020.
- Journals characterized by a slow publication rate, where the amount of articles they publish does not match the other two subsets.

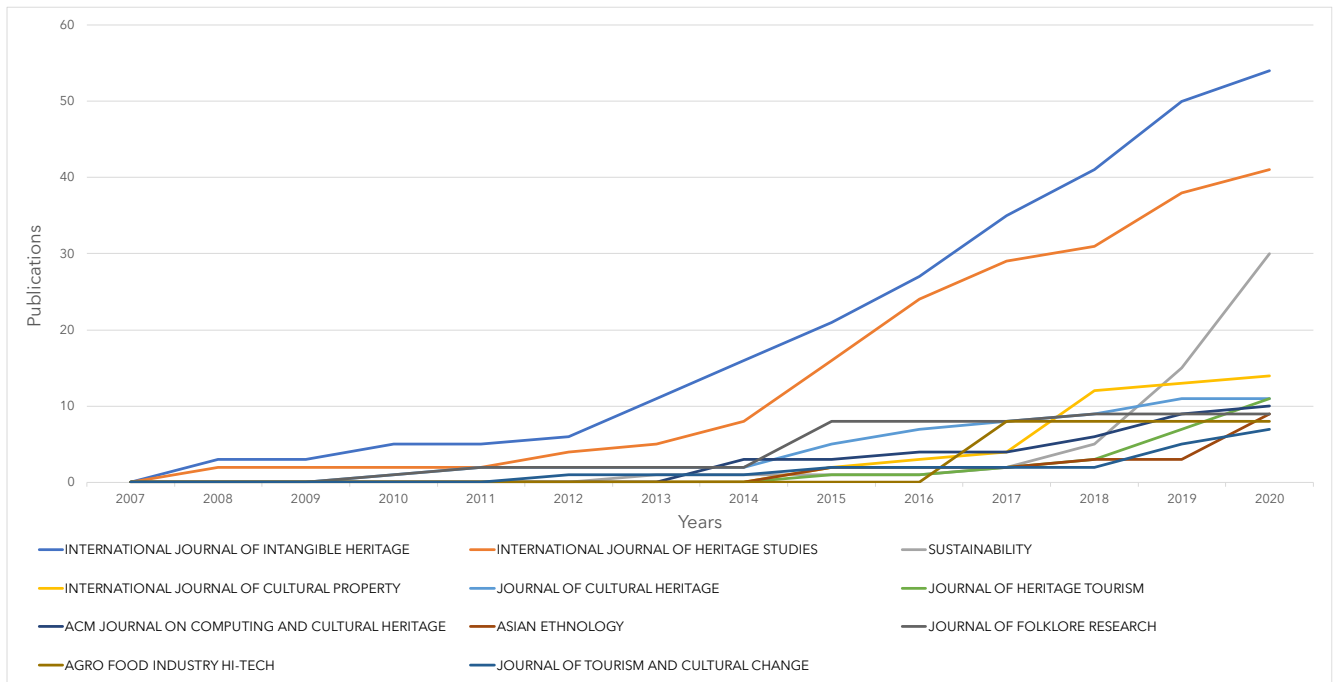


Figure 5 Growth in Sources.
Source: author's compilation

Figure 5 represents the amount of ICH-related articles that each of the 11 most productive sources have published from 2007 to 2020. The evolution of the sources is clearly divided into 3 subsets: steady grow since the beginning, slow beginning but rapid catch, and slow publication rate.

Regarding the source co-citation network (Figure 6), two clusters were obtained. Essentially, each node represents a journal, their size represent the number of publications of the journal, the edges represent the interactions with other journals and the nodes located in the extremes suggest a lower relation to the other cluster. Taking a look at the *International Journal of Heritage Studies*, its large node is in cluster 1 but it is located at the center and is the closest to the blue cluster. Therefore, in compliance with the above and confirming with Table A1, this journal had a large number of citations (354) and produced a considerable amount of articles (41). Consequently, its position indicates a relation with journals engaged on different matters, but especially with the journals represented in the red cluster. Similarly, the *Journal of Cultural Heritage*, belonging to cluster 2, also shows important interactions with the red cluster (with 423 citations).

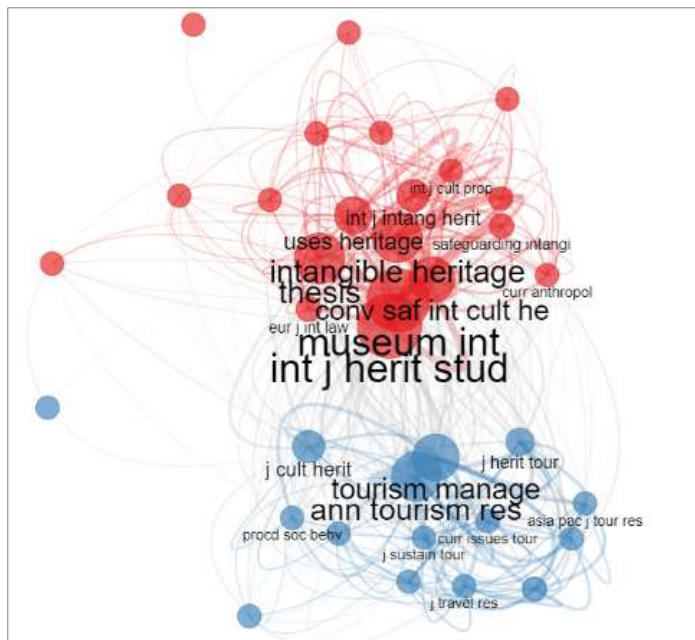


Figure 6 Co-citation of Sources.
Cluster 1 = Red; Cluster 2 = Blue. Source: author's compilation

As shown in the co-citation network (Figure 6), the red cluster is associated with journals which, generally deal with ICH by its essence. They speak about music, and folklore, but also about safeguarding ICH, communication such as museums and also international laws. Thus, these articles mainly address issues as on-the-ground perspectives of people engaged with the UNESCO policies on the local level (Foster, 2015a), living and dying oral traditions (Bamo et al., 2016; D'Evelyn, 2018), rituals (Foster, 2015b; Gilman, 2015; Silverman, 2015), folksongs and music genres (Rees, 2016; Grant 2012), communities (Harris, 2020; Ingram, 2020), preservation of knowledge (Luby, 2018; Alwi, 2019) and international laws for the safeguarding of ICH (Lixinski, 2011, Lenzerini, 2011).

In the other hand, the journals shown in the blue cluster are related to similar matters as the red one, but focused on tourism. In fact, the essays are mostly focused on how ICH is a source of attraction and an addition for tourism offerings (Esfehni & Albrecht, 2018; González et al., 2020; Kim et al., 2019) and how tourism helps as a conservation tool of ICH (Zandieh & Seifpour, 2020; Abascal, 2019; Dryjanska, 2015).

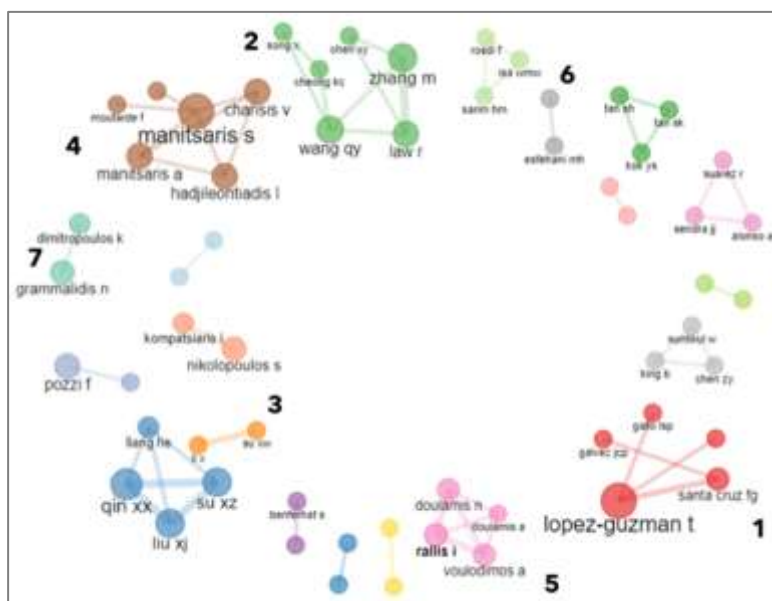
Figure 6 represents the co-citation of sources. Each node represents a source, their size indicates the number of publications and the edges show the amount of interactions with other sources. The further away the nodes are from the other cluster, the lower their interaction. Two clusters are identified, where the first is composed of journals that write about ICH by its essence and the importance of safeguarding it; and the second is composed of journals that write about ICH within tourism.

4.3. AUTHORS

Regarding the analysis of the authors, the results are divided as follows: firstly the most relevant authors and their bibliometric indicators (Table A2), in a second stage the author collaboration network is presented (Figure 7), it is followed by the authors' production over time (Figure 8), subsequently the intellectual structure of a co-citation network is presented (Figure 9). To conclude, a subsection was added to present the results of the countries of origin of the corresponding authors.

The productivity of the authors (Table A2) is presented both at individual and fractionalized perspectives. The fractionalized production indicates that an author collaborated with other authors to publish an article and the production is then a fraction of the authorship. It is interesting to note that only three of the most productive authors wrote all their articles individually (Foster, Karakul and Grant), as the number of total production of articles coincides with the number of fractionalized production. Another noteworthy information relies in the H-index of the author Grant, who managed to get the highest H-index with all of his four publications being cited at least four times each. Overall, this table goes in line with the main information presented in Table 3, which indicates that on average, an article was published by 2.03 authors.

The amount of clusters found in the author collaboration network (Figure 7) was 19. In the collaboration network, each cluster is represented by a different color. The clusters with a number are in line with the most productive authors listed in Table A2. The number of nodes chosen in the collaboration network was 100, this was because if a larger number was used, a much greater number of individual authors would appear, which would make the network too difficult to understand.



In Figure 7, each node represents an author and each color a cluster. Within each cluster, not all authors collaborated amongst themselves, but they are still connected through at most two authors. Clusters 1, 2, 3 and 6 are related to tourism and clusters 4, 5 and 7 are related to computer science.

Figure 7 Author Collaboration Network.
Source: author's compilation

The 7 clusters identified are divided into two main themes: tourism and computer science. Cluster 1 is associated with studies that highlight the relationship between culture and tourism. (Lopez-Guzman, & Santa Cruz, 2016). All of the articles published by the authors in Cluster 1 have study a specific region, which are all Spanish speaking (Cordoba Spain, Popayan Colombia and Oruro Bolivia). While for the Oruro Carnival in Bolivia the types of tourists identified were alternative, cultural, emotional and patrimonial (Pérez-Gálvez et al., 2019), the city of Popayan in Colombia identified visitors as incidental cultural, sightseeing cultural, serendipitous cultural and purposeful cultural tourists (Santa Cruz, 2020b). It is important to note that the studies conducted in Cluster 1 defend that tourism brings a significant positive economic impact to the destinations where ICH is promoted (Lopez-Guzman et al. 2016). In fact, Santa Cruz et al. (2020a) concluded that tourists' loyalty dependent not only on their motivation but also to other variables such as the perception of the processions and the evaluation of the elements of the destination.

Cluster 2 also makes part of the clusters falling in the tourism theme. In this cluster, the focus switches from Spanish-speaking countries to specifically China, where all the publications have a specific region of studies (Suzhou, Zhejiang, and Meizhou Island). The studies in this cluster confirmed that tourists' perceived values are important for their intention of revisit (Yao et al., 2020). Moreover, cultural identity has an effective driving force to promote tourists' consumption intention (Zhang et al., 2020). In fact, Tian et al. (2020) defend that building a characteristic town is a unique development mode of ICH tourism. Furthermore, Qiu (2020) defends that the community residents' attitude and perception of ICH contribute to tourism development.

Cluster 3 is as Cluster 2 made up of authors from China. However, this cluster focuses not only on the links between ICH and tourism, but goes deep into authenticity and the truthfulness of the inheritance from generation to generation. In fact, Su et al. (2020a) supports that inheritors have a core position in the stakeholders of ICH, and therefore their value cognition is the basis that guides people's behaviors. Moreover, the third cluster concludes that authenticity plays an important role in the perceived value of tourists, as it improves the perception of experience quality (Su et al. 2020b). However, it is noteworthy that authenticity of event culture is the most important and effective authentic factor, while commodification - the authentic auxiliary products - are indispensable for authenticity (Zhang, 2018). Finally, the results of one of the studies concluded that awe was an outcome variable of involvement and experience quality, as well as an antecedent variable of loyalty (Su et al., 2020), which goes in line with the results of the other cluster's studies.

Cluster 6 is the fourth and last cluster which enters in the tourist theme. In this cluster, local ICH is found to manifest and be used in tourism in three different ways: as a foundation of attraction and addition to any tourism offerings, as a conservation tool, and as a driver for facilitating culturally and naturally sensitive behavior (Esfehani, & Albrecht, 2018).

Moreover, these two authors defend in another publication that there is a need to involve stakeholders who co-create value from both tourism and heritage preservation perspectives in tourism planning (Esfehani, & Albrecht, 2019).

Cluster 4 is composed of authors who argue that cultural expressions of ICH are modified over the time through the process of collective recreation (Dimitropoulos et al., 2018). These authors propose a holistic approach for safeguarding and transmitting ICH, that goes beyond the simple digitization of ICH content. The “i-Treasures” Web platform allows researchers to exchange knowledge amongst themselves and to feasibly find hidden correlations between different ICH expressions or interpretation styles, and study the evolution of a specific ICH but also for bearers to transmit ICH to apprentices. The Web platform is made with a multisensory technology for capturing ICH, this approach enables the generation of completely new cultural content. Other authors propose the “Intangible Musical instrument” (Volioti et al., 2018). This prototype is able to capture, model, and recognize musical gestures as well as to sonify them. The objective is to facilitate access to knowledge of performers that constitutes musical Intangible Cultural Heritage. Finally, Manitsaris et al. (2014) suggest a system that allows wheel-throwing pottery skills to be transmitted over a human-computed interface. In fact, by capturing and modeling gestural knowledge and skills, the system permits both the modeling and the recognition of expert technical gestures, and assists in the learning of these gestures by providing continuous feedback in real time by measuring the differences between the experts and the learners.

Cluster 5 and 7 are both composed of authors who defend that game-based learning are very effective ways for learning and transmitting ICH, namely folk dance (Grammatikopoulou et al., 2019). As more and more people in the game industry are interested in the field of cultural heritage, specifically dance ICH (Bakalos et al., 2020), the digitization and visualization of folk dances form a gradually active research area in computer science (Kico et al., 2018). The authors of clusters 5 and 7 introduce different techniques to extract prominent representative instances of a dance and create temporal summaries of the sequence at different levels of detail (Voulodimos et al., 2020; Rallis et al., 2019).

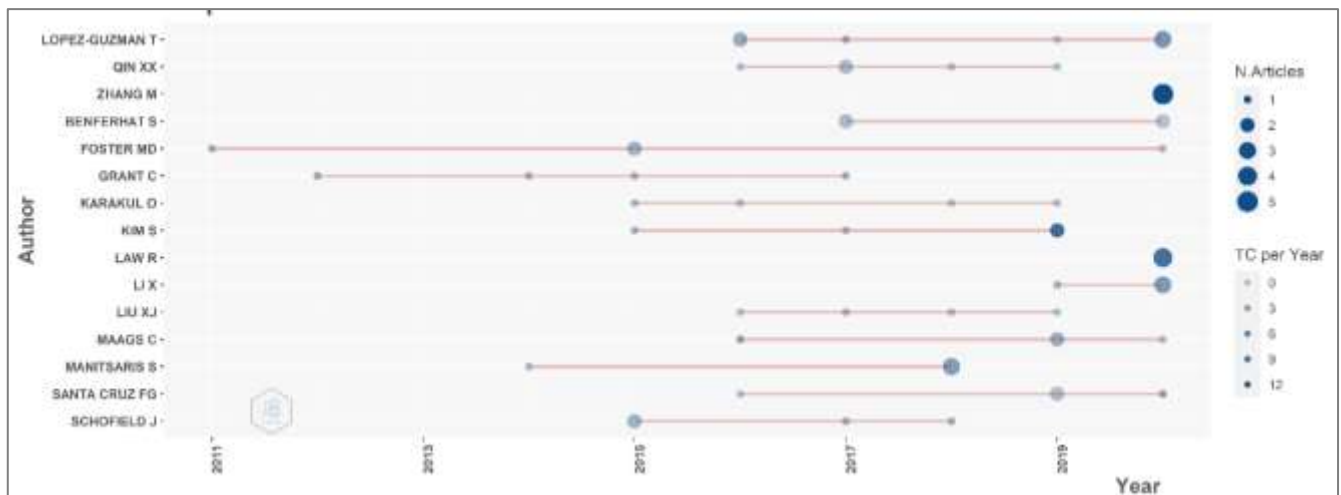
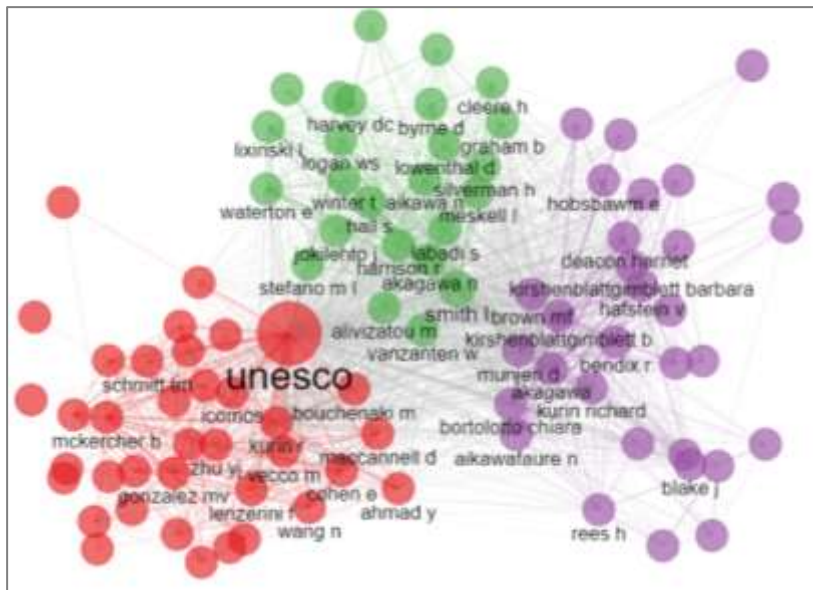


Figure 8 Production of Top Authors over time.
TC=Total Citation. Source: author's compilation

Figure 8 shows the production of the 15 top authors. The size of the bubbles represents the number of articles written, the larger the bubble, the higher the amount of articles. Their shade represents the total citations per year, the darker the shade the more citations. Foster shows a continuous work overtime producing ICH-related articles in 2011, 2015 and 2020. Zhang and Law only published in 2020 (5 and 4 articles respectively).

In regard to the authors' production over time (Figure 8), Foster was the author with the most continuous trajectory in ICH research. The authors Zhang and Law presented a short period of production, both only publishing articles related to ICH in 2020. They were however able to produce 5 and 4 articles respectively in only 1 year. One of the articles by the authors Kim and Lopez-Guzman received 66% and 41% of their total citations respectively. Both articles defend that sustainable tourism approaches are necessary to achieve a successful transmission and promotion of ICH as a sustainable resource (Kim et al., 2019; Lopez-Guzman & Santa-Cruz, 2016). These two authors belong to the first cluster (in red) of the co-citation network (Figure 9).



In Figure 9, each node represents an author, the larger the node the higher the amount of ICH-production. And each edge connects two authors that were cited together. 3 clusters are identified. Cluster 1 is related to the safeguard of ICH, cluster 2 does not have a common theme, and cluster 3 is related to communities and countries' engagement in preserving ICH.

Figure 9 Co-citation Network of Authors.

Cluster 1 = Red; Cluster 2 = Green; Cluster 3 = Purple. Source: author's compilation

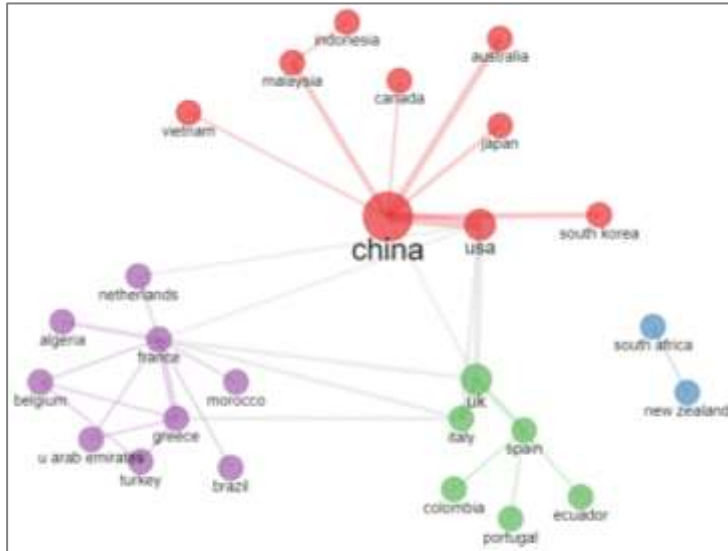
In the co-citation network (Figure 9), Cluster 1 is related to the safeguard of ICH (Schmitt, 2008). The authors consider that it is important for the world to maintain its cultural diversity and for each country to safeguard their cultural identity and authenticity (Lenzerini, 2011; Vecco, 2009). The authors in Cluster 1 benefited from the highest number of total citations, and their production was continuous over time.

Cluster 2 does not show a uniform theme amongst their authors. In fact, in his article, Lixinski (2011) defends that each country should mobilize their state sovereignty and the community to identify and safeguard their different ICH. On the other hand, Stefano and Murphy (2016) specifically address the US public folklore and argue that it is essential to protect this living cultural tradition.

Cluster 3 is related to communities and countries' engagement in preserving ICH. Indeed the author Aikawa (2014) promotes what Japan has done to safeguard the "Folk Cultural Properties" of the country. Blake (2019) expresses the vital requisite of communities' and groups' involvement to protect ICH. Similarly, Bortolotto et al. (2020) studies the bureaucratization of the ideal community participation in ICH safeguarding and management.

4.3.1. Country collaboration, production and citation

With the objective of analyzing the most productive countries through country affiliation of authors, this sub-section presents country collaboration social networks, national and international collaboration and productivity and citation networks.



In Figure 10, each node represents a country, the larger the size of the node, the higher the amount of production of the country. Each edge represents a collaboration between two countries, the larger the edge, the higher the amount of collaborations between these countries.

Figure 10 Country Collaboration Network.

Source: author's compilation

According to the country collaboration network (Figure 10) and the collaboration World map (Figure A2), the majority of interactions were mainly between China and the USA and China and Australia. The USA and the UK also showed a high interaction, as well as the UK and Spain. The most collaborative countries are simply identified in Figure 10, since the size of their nodes is clearly larger than the others. It is the case for China and the USA. These countries published 27% and 13% of the total production respectively. Figure A1 presents the collaboration of each of the 20 most productive countries. In fact, MCP refers to the documents where at least one of the authors is from a different country than the others, and SCP refers to the documents where the collaboration happens within the same country. It is noteworthy that all countries except from France have a preference for single-country-publications. Indeed France is the only country that has both seven single-country-publications and seven multi-country-publications.

It is interesting to note that the country that ranked fifth in country total citation and production (Table A3) with 31 publications, was the country that received the most citations (909). Nevertheless, we can generally conclude that the most productive countries were also the ones receiving the most citations.

4.4. DOCUMENTS

Regarding the analysis of Documents, the results are distributed as follows: in a first stage the articles that received the most citations are described ([Table A4](#)), secondly a references co-citation network is presented ([Figure 11](#)). This is followed by two sub-sections, the first one analyzes the authors' keywords, and the second studies the themes and thematic areas.

[Table A4](#) shows the 20 articles that received the most total citations. The most cited document (Bach-Faig et al., 2011) studied a specific area of ICH, the Mediterranean Diet (MD). The authors of the article argued that the MD provided many benefits such as a healthy and general well-being, and that it was therefore important to preserve this ICH. Another article focused its research on MD (Féart et al., 2013), and another one studied another diet aspect of ICH, the tea (Grasser et al., 2012). The later concluded that gathering wild plants could be seen as an expression of people's regional identity, as it expresses local preferences, habits and man's relationship with nature. These two last articles ranked 4th and 19th respectively. The paper by Bach-Faig et al. (2011), whose corresponding author is from Spain, obtained 79% of the country's total citations. Similarly, another significant article which analyzed the evolution of the concept cultural heritage in the Western European states (Vecco, 2010), obtained 55% of the corresponding author's country, Italy. While in the previous sections most of the articles studied were linked to tourism, the same cannot be said about the most cited documents. In fact, out of the 20 most cited documents, only 5 are related to tourism. While some articles defend that ICH is important for the tourists' appreciation (Xu et al. 2013; Esfehni & Albrecht, 2018; Kim et al., 2019), the others argue that tourism is threatening ICH and its authenticity and there is an urge to create a sustainable heritage tourism (Tan et al., 2018; Su, 2018).

It is interesting to note the differences between total citation and local citation ([Table A4](#)). In fact it can be the conclusion of the relationship that these documents have with other subjects beyond ICH such as tourism or food and beverage. This difference shows that the articles have a larger relation with external issues than internal ones.

In regard to the reference co-citation ([Figure 11](#)), three main clusters can be identified, where 5 of the most cited articles appear. Indeed, three of the articles in [Table A4](#) are in Cluster 2 (blue cluster), one is in Cluster 1 (red cluster) and the other in Cluster 3 (green cluster).

Cluster 1 is linked to the preservation and protection of ICH (Aikawa-Faure, 2014; Titon, 2009; Lixinski, 2011; Alivizatou, 2012b; You, 2015). Cluster 2 is constituted of articles that address the definition of ICH and the importance that the international community is giving for safeguarding of ICH (Schmitt, 2008; Lenzerini, 2011; Esfehni & Albrecht, 2018). Cluster 3 is directed towards the recognition of ICH and its legal protection (Lixinski, 2013; Vecco, 2010).

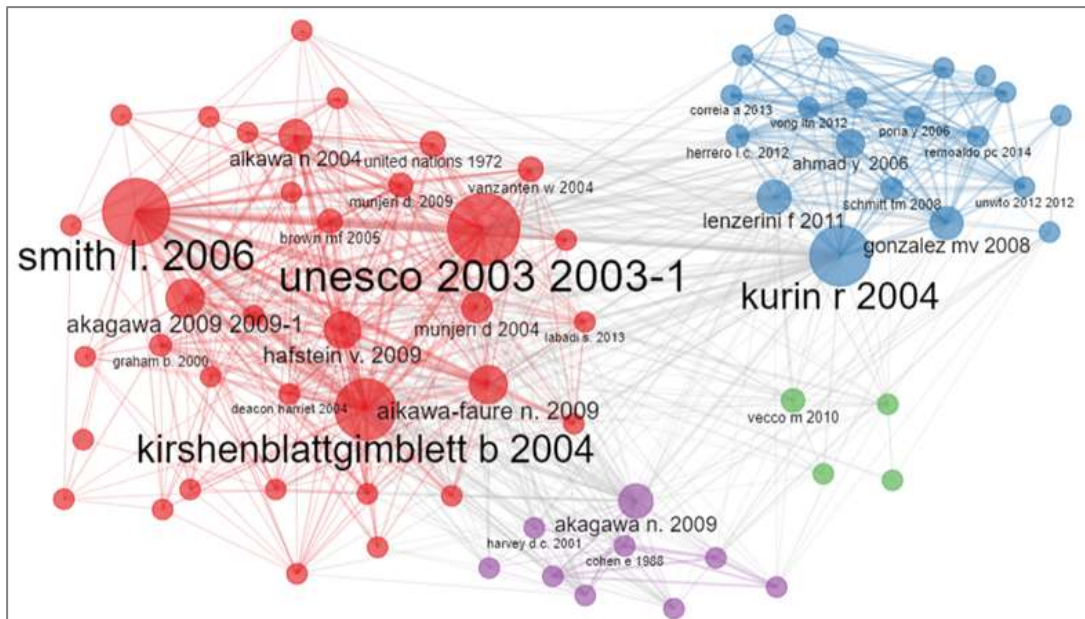


Figure 11 References Co-citation network.

Cluster 1 = Red; Cluster 2 = Blue; Cluster 3 = Green. Source: author's compilation

In Figure 11 each node represents a reference used in the studied articles. The larger the size of the node, the more often the reference was cited. Each edge unites two references that were cited together. 3 clusters are identified: cluster one refers to the preservation and protection of ICH; cluster 2 represents articles that refer the definition of ICH and the importance that the international community is giving for safeguarding ICH; cluster 3 is directed towards the recognition

4.4.1. Keyword analysis

Concerning the most relevant keywords (Table A5), some differences can be spotted between the authors' keywords and the keywords plus. In particular regarding the keyword plus "conservation" mentioned 11 times. Even though the subject was vastly used when studying the various clusters either at source, author or document level, it is curious to note that non-of the keywords: "preservation", "protection" or "conservation" is present in the most relevant authors' keywords.



Figure 12 represents the authors' keywords that were most used in this study. The larger the word the more times it was used.

Figure 12 Authors' keywords Word Cloud (ICH omitted).

Source: author's compilation

Figure 12 shows the most frequently used author keywords in the 626 publications. The evolution of the authors' keywords over time is represented in Figure 13. The dominating terms are clearly "UNESCO", "Cultural Heritage" and "Intangible Heritage". There is an inflection point that can be seen at year 2017, where the dominating terms' frequency increases heavily, while the other terms also increase their frequency but at a slower pace. Besides "Identity" and "Mediterranean Diet" that appear in 5% and 1.5% of the publications respectively, all the other terms appear at least in 7.5% of the publications, and the dominating terms in at least 31.5%.

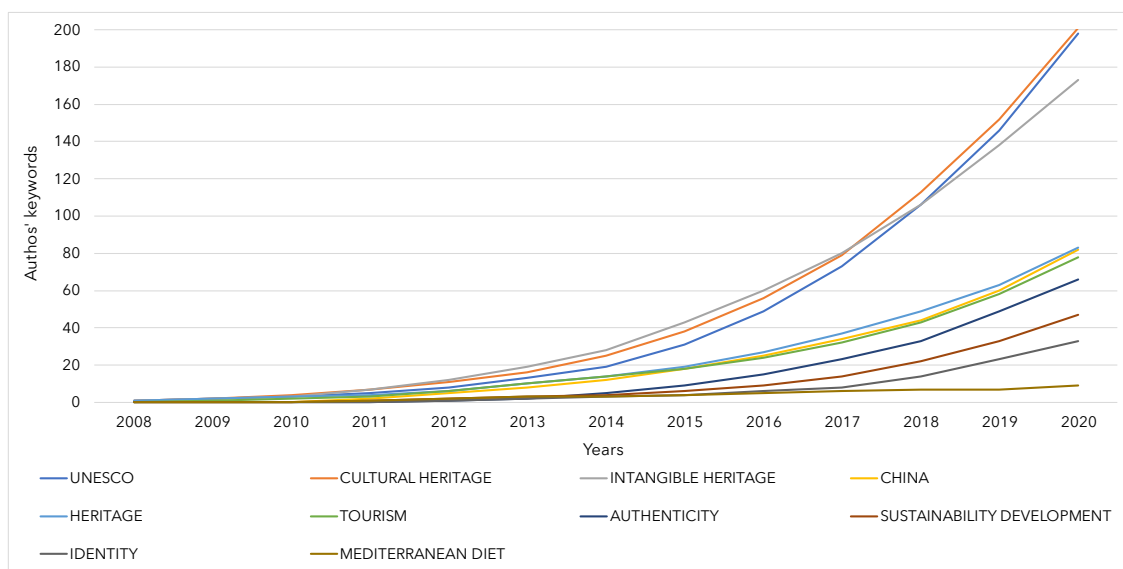


Figure 13 Authors' Keywords growth.

Source: author's compilation

Figure 13 represents the growth of the authors' keywords from 2008 to 2020. The three dominating terms are clearly UNESCO, Cultural Heritage and Intangible Heritage.

4.4.2. Themes and thematic areas

In order to understand the evolution of the ICH research area, the following sub-section takes into account the three sub-periods described in the Methodology section (3.2 Data analysis). Therefore, three strategic diagrams (Figure A3 to Figure A5) and a thematic evolution map were developed (Figure 14).

In what concerns the sub-period A, from 2007 to 2012 (Figure A3), the most developed themes were naturally intangible heritage and ICH, but also ethnic minority and UNESCO. These clusters and their related topics were in accordance with the studies performed on Australia (Christidis et al., 2008), Vietnam (Hien, 2007) and Japan (Nakamura, 2008) among others. World Heritage appeared as an emerging theme during this sub-period and then disappeared in the following sub-periods. In fact, the only theme that was present in all sub-periods was ICH which remained a basic theme in the second sub-period but then became a motor theme in the third sub-period.

In the sub-period B, from 2013 to 2016 (Figure A4), all the themes evolved and ended being in motor and basic themes. The most outstanding theme became UNESCO with terms as intangible heritage, tourism or music being part of the theme. These were supported by the publications related to the studies about the recreation of musical past (Bennett, & Rogers, 2016; Diettrich, 2015), the local communities' participation in tourism activities (Erdenekhuyag, 2015; Su, 2016), as well as specific ICH such as shadow theaters (Aykan, B, 2015), expressions in mosques (Disli, 2015), or the holistic views of sites (Karakul, 2016).

The sub-period C, from 2017 to 2020 (Figure A5) showed a significant increase in the number of themes and the documents related to them. The most developed theme was "indigenous", which was in accordance with all the research regarding indigenous people, rituals or languages around the World. In fact, there were studies on the Ecuadorian Amazon region and the indigenous orality (Alchazidu, 2020), on the cultural intellectual property of Australian indigenous (Bodle et al., 2018), or the indigenous religions in Latvia (Stasulane, 2019). It is noteworthy that some emerging themes appeared such as heritage education, reminding the importance of understanding and preserving ICH. Some niche themes also appeared such as willingness to pay, referring to a possible decline in some ICH due to a lack of conservation methods and willingness to pay from visitors (Park et al., 2020), or on the contrary a rise of other ICH due to a high willingness to pay from visitors (Jin et al., 2017). Finally, it is relevant to note that the theme cultural heritage considered a basic theme was composed of terms as sustainable development, sustainability and cultural sustainability. This shows the importance that sustainability is taking in ICH and that more and more people are taking the necessary steps to rescue and protect ICH (Chhabra, 2019; Vegheş, 2018; Song et al., 2019).

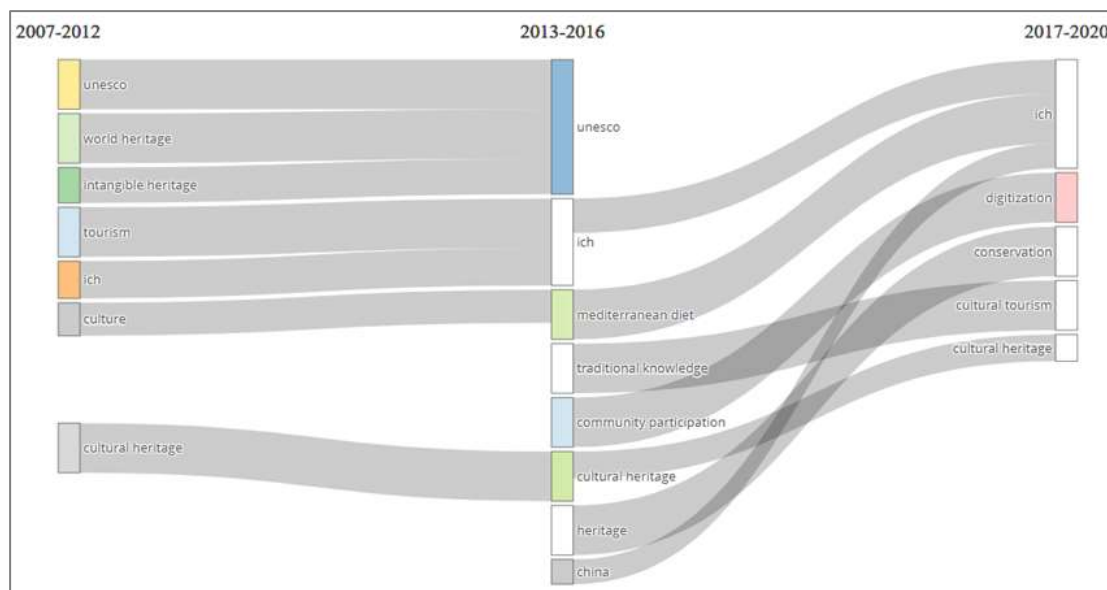


Figure 14 Thematic evolution through the 3 sub-periods.

Source: author's compilation

Figure 14 shows the evolution of the most used terms in this study, divided in 3 sub-periods. The most consistent terms through the 3 periods are ich and cultural heritage. 4 completely new trends arrive in the second period (traditional knowledge, community participants, heritage and China). The third period is composed of the main themes encountered throughout this analysis.

Figure 14 represents the thematic evolution in the three sub-periods. Its objective is to identify trends; therefore, the inclusion index was set to be at least 0.5. The most consistent terms through the sub-periods are naturally ich and cultural heritage. It is noteworthy that in the second period (2013 - 2016), four completely new trends arrived: traditional knowledge, community participation, heritage and China. In fact, since the 2003 Convention, countries have put more effort into sensibilizing their people about ICH. Therefore, the community participation and specially the knowledge and understanding of ICH has been an important factor for the safeguard and preservation of ICH. Moreover, as seen in Table A3, China was the most productive country, publishing 19.3% of all the articles related to ICH. Nevertheless, it is only in the third sub-period that the expansion of Chinese publications happened, as it was in that period that the Chinese authors published 78.5% of their ICH-related articles. The themes represented in the third period of Figure 14 are essentially the main themes encountered throughout this analysis. Indeed, tourism is one of the main topics related to ICH, from one side the positive and negative effects of tourism on ICH are studied, and from the other side ICH is studied as an attraction for tourism to destinations. Digitization was also an important topic, namely in the Author collaboration network. In fact, more and more studies about the preservation of ICH through digital tools are being published, which makes digitization a promising topic when studying ICH. Finally, conservation is the other pillar topic, as it is ultimately the main goal of any ICH research.

5. CONCLUSION

The aim of this study was to identify the trends in ICH scientific production over time taking into account the three key pillars of scientific production. With this objective, a bibliometric analysis was performed using the R-tool bibliometrix and the source WoS in the period from 2007 to 2020.

The results from the citation analysis showed that there was a significant increase in production related to ICH, particularly as of 2013. Both the amount of authors and sources increased as well over the time.

The source analysis revealed that the most influential source was the Journal of Cultural Heritage with a total amount of 423 citations. However, the International Journal of Intangible Heritage ranked first in the most productive journals publishing 54 articles in the studied period. Finally, the International Journal of Heritage Studies had the highest H index impact with 12 publications cited 12 times each.

The author analysis showed that the most influential author were Grant and Esfehiani with a total of 49 citations each. However, they ranked 6th and 18th respectively in terms of production, compared to Lopez-Guzman who published 7 articles. Grant did however get the highest H index impact with 4 publications cited 4 times each.

This study detected two main branches of co-citation networks: one mostly associated to the tourism, communities and social matters of ICH (social field), and another associated to the safeguard, protection and preservation of ICH (sustainability field), in which themes like conservation, and digitization were discussed. Within the sources' co-citation analysis, the two branches were clearly identified on one side highlighting the tourism relations to ICH and on the other explaining ICH by its essence by promoting music and folklore, but also unveiling the importance of safeguarding it. Regarding the authors and documents co-citations, these are more inclined towards the second branch - sustainability. In fact, within these two levels, several sub-branches are identified such as the general safeguard of ICH but also the recognition and legal protection of ICH. Nevertheless, the social branch was also emphasized within the authors co-citation analysis, with the communities and countries' engagement in preserving ICH.

Regarding the most productive authors and their collaboration cluster, the authors can be divided in the two branches. Four of the seven clusters found in the collaboration cluster were related to the social branch, enhancing the relationship between culture and tourism, the fact that cultural identity and authenticity play important roles in the tourists' perception of experience quality, and emphasizing the three main uses of local ICH towards tourism: as a foundation of attraction and addition to any tourism offerings, as a conservation tool, and as a driver for facilitating culturally and naturally sensitive behavior.

The other three collaboration clusters refer to the sustainability branch, as the authors look for new ways of preserving and transmitting ICH. In fact, these authors consider that game-based learning is a very effective way for learning and transmitting ICH, therefore various games are being invented for this purpose.

This study did not detect a clear link between the most productive authors and the most cited documents or with the highest H index. Moreover, regarding the most relevant documents, the number of global and local citations were very different. This could be due, to the larger interest of authors from other research fields closely related to the field of ICH than those from within the research field of ICH itself.

It is interesting to note the different interactions presented in the country collaboration. In fact, China stands out both in terms of volume and collaboration frequency. In terms of co-citations, Spain was ranked first, led by China and Italy, these represent the high level of influence of these countries' studies. It is noteworthy that the four most productive countries were each from a different continent: Asia, North America, Europe and Australia; and Africa entered with South-Africa being the 20th most productive country. Taking into account the collaborations, over half of the articles studied were co-authored. Nevertheless, these were mainly co-authored on a national level, as the international collaboration was shown to be very low.

Regarding the authors' keywords' growth and the most relevant keywords, it is notable that the terms UNESCO, cultural heritage and intangible heritage were the ones appearing in more papers and growing the most. Moreover, the fact that several topics focused on specific geographical areas such as China, Japan or Mediterranean countries, suggests that there is a degree of localism in the scientific production regarding ICH. Finally, the thematic evolution presents in the final period a clear "wrap-up" of the themes encountered through the analysis. From tourism falling in the social branch to digitization and conservation falling in the sustainability branch.

5.1. LIMITATIONS AND OPPORTUNITIES

This study relies on the articles extracted from WoS. However, this database being constantly updated, it is possible that a few years from now a bibliometric analysis on ICH suffers from significant variations. Moreover, the database was chosen for having the most comprehensive records of citation indexes; however, the global perspective could be improved with the inclusion of other databases.

However, this study offers results that can help researchers to find information in specific topics. Moreover, information regarding collaborations could be useful to find those who have specialized in specific topics. This analysis presents an occasion for future researchers to enlarge the databases used, the level of analysis or even to emphasis on particular topics within ICH or related areas.

6. APPENDICES

6.1. TABLES

R	Source	P	H	TC	CC
1	International Journal of Intangible Heritage	54	6	155	1
2	International Journal of Heritage Studies	41	12	354	1
3	Sustainability	30	5	103	x
4	International Journal of Cultural Property	14	3	42	1
5	Journal of Cultural Heritage	11	8	423	2
6	Journal of Heritage Tourism	11	6	101	2
7	Acm Journal on Computing and Cultural Heritage	10	4	35	1
8	Journal of Folklore Research	9	5	76	1
9	Journal of Tourism and Cultural Change	7	5	49	x
10	Agro Food Industry Hi-Tech	8	2	12	x
11	Asian Ethnology	9	3	24	1
12	European Journal of Sustainable Development	5	2	7	2
13	Kajian Malaysia	4	2	9	x
14	Asian Theatre Journal	6	2	19	1
15	Folklore-Electronic Journal of Folklore	5	1	10	x
16	Heritage and Society	4	3	22	1
17	Heritage	5	1	3	x
18	Journal of Cultural Heritage Management and Sustainable Development	4	2	5	2
19	Asian Education and Development Studies	5	1	1	1
20	Journal of Coastal Research	4	1	4	x

Table A1 Scientific Production by Source.

R=Position in the Ranking, P = Production of articles, H = H index, TC = Total Citations of the total articles belonging to a source, CC = Co-citation cluster, x = this item does not have a specific value in this category.

Source: author's compilation

R	Authors	P	FR	H	TC	Coll	CC
1	Lopez-Guzman T	7	2.58	1	15	1	1
2	Qin XX	5	1.35	1	4	x	x
3	Zhang M	5	1.15	3	24	2	x
4	Foster MD	4	4.00	3	28	x	3
5	Karakul O	4	4.00	1	8	x	1
6	Grant C	4	4.00	4	49	x	3
7	Maags C	4	3.00	2	26	x	x
8	Schofield J	4	2.00	3	24	x	x
9	Kim S	4	1.92	4	41	x	1
10	Santa Cruz FG	4	1.33	2	8	1	1
11	Benferhat S	4	1.03	1	3	x	x
12	Li X	4	1.03	2	12	3	x
13	Wang QY	4	0.95	1	5	2	x
14	Manitsaris S	4	0.92	3	19	4	x
15	Law R	4	0.90	3	17	2	x
16	Liu XJ	4	0.85	1	4	x	x
17	Su XZ	4	0.85	1	4	x	x
18	Esfehiani MH	3	1.50	3	49	6	x
19	Doulamis N	3	0.67	2	12	5	x
20	Grammalidis N	3	0.48	2	18	7	x

Table A2 Most Relevant Authors.

R = Position in the Ranking, P = Production of articles, FR = Fractionalized production of articles, H = H index, TC = Total Citations, Coll = Collaboration cluster, CC = Co-citation cluster, x = this item does not have a specific value in this category.

Source: author's compilation

R	Country	P	TC	Coll
1	China	121	555	1
2	USA	66	418	1
3	UK	64	255	3
4	Australia	35	256	1
5	Spain	31	909	3
6	Malaysia	22	84	1
7	Italy	19	507	3
8	Greece	18	72	2
9	South Korea	18	62	1
10	Canada	17	76	1
11	Turkey	15	60	2
12	France	14	153	2
13	Germany	12	103	x
14	Romania	10	9	x
15	Japan	9	12	1
16	Indonesia	8	13	1
17	Netherlands	7	81	2
18	Poland	7	5	x
19	Denmark	6	16	x
20	South Africa	6	42	4

Table A3 Country Total Citation and Production.

R = Position in the Ranking, P = Production of articles, TC = Total Citation, Coll = Collaboration cluster, x = this item does not have a specific value in this category. Source: author's compilation

R	Paper	Year	TC	TCY	LC	Source	CC
1	Mediterranean diet pyramid today. Science and cultural updates (Bach-Faig A. et al., 2011)	2011	718	65.3	7	Public Health Nutrition	x
2	A definition of cultural heritage: From the tangible to the intangible (Vecco M., 2010)	2010	277	23.1	0	Journal of Cultural Heritage	3
3	Intangible Cultural Heritage: The Living Culture of Peoples (Lenzerini, F., 2011)	2011	102	9.3	0	European Journal of International Law	2
4	Potential benefits of adherence to the Mediterranean diet on cognitive health (Feart, C. et al., 2013)	2013	98	10.9	6	Proceedings of the Nutrition Society	x
5	Effective environmental interpretation at Chinese natural attractions: the need for an aesthetic approach (Xu, H.G. Et al., 2013)	2013	73	8.1	0	Journal of Sustainable Tourism	x
6	Chinese-Noodle-Inspired Muscle Myofiber Fabrication (Li, Y., 2015)	2015	42	6.0	0	Advanced Functional Materials	x
7	The market value of cultural heritage in urban areas: an application of spatial hedonic pricing (Lazrak, F., 2014)	2014	42	5.3	0	Journal of Geographical Systems	x
8	The Social Production of Heritage through Cross-media Interaction: Making Place for Place-making (Giaccardi, E., 2008)	2008	42	3.0	6	International Journal of Heritage Studies	x
9	The UNESCO Concept of Safeguarding Intangible Cultural Heritage: Its Background and Marrakchi Roots (Schmitt, T.M., 2008)	2008	39	2.8	0	International Journal of Heritage Studies	2
10	Selecting Heritage: The Interplay of Art, Politics and Identity (Lixinski, L., 2011)	2011	38	3.5	0	European Journal of International Law	1
11	Sustainable development and cultural heritage management in Botswana: towards sustainable communities (Keitumetse, S.O., 2011)	2011	34	3.1	0	Sustainable Development	x
12	Sense of place and sustainability of intangible cultural heritage - The case of George Town and Melaka (Tan, S.K., 2018)	2018	31	3.9	0	Tourism Management	x
13	Renovation priority ranking by multi-criteria assessment of architectural heritage: the case of castles (Vodopivec, B., 2014)	2014	31	7.8	0	International Journal of Strategic Property	x
14	Giving space to multicriteria analysis for complex cultural heritage systems: The case of the castles in Valle D'Aosta Region, Italy (Oppio, A., 2015)	2015	30	4.3	0	Journal of Cultural Heritage	x
15	Roles of intangible cultural heritage in tourism in natural protected areas (Esfehani, M.H. and Albrecht, J., 2018)	2018	29	7.3	6	Journal of Heritage Tourism	2
16	Conceptualising the subjective authenticity of intangible cultural heritage (Su, J.J., 2018)	2018	25	6.3	0	International Journal of Heritage Studies	x
17	Environmental Crisis, Culture Loss, and a New Musical Aesthetic: China's "Original Ecology Folksongs" In Theory and Practice (Rees, H., 2016)	2016	24	4.0	0	Ethnomusicology	x
18	Intangible cultural heritage: The sound of the Romanesque cathedral of Santiago de Compostela (Suarez, R., 2015)	2015	24	3.4	0	Journal of Cultural Heritage	x
19	Gathering "tea" - from necessity to connectedness with nature. Local knowledge about wild plant gathering in the Biosphere Reserve Grosses Walsertal (Austria) (Grasser, S. et al. 2012)	2012	24	2.4	0	Journal of Ethnobiology and Ethnomedicine	x
20	Development of intangible cultural heritage as a sustainable tourism resource: the intangible cultural heritage practitioners' perspectives (Kim, S. et al., 2019)	2019	23	7.6	4	Journal of Heritage Tourism	x

Table A4 Most relevant documents.

R=Position in the ranking; TC = Total Citation; TCY = Total Citation by year; LC = Local Citation CC = Co-citation cluster, x = this item does not have a specific value in this category.

Source: author's compilation

Keywords PLUS	Articles	Authors' Keywords	Articles
cultural heritage	22	ich	187
ich	20	unesco	52
politics	19	cultural heritage	49
authenticity	18	intangible heritage	35
heritage	18	china	22
tourism	16	heritage	20
convention	13	tourism	20
identity	13	authenticity	17
satisfaction	13	sustainability development	14
management	12	identity	10
perception	12	sustainability	10
world heritage	12	heritage tourism	9
conservation	11	mediterranean diet	9
model	10	culture	8
quality	9	batik	7
visitors	9	digitization	7
china	8	japan	7
culture	8	local community	7
experience	8	nationalism	7
loyalty	8	participation	7

Table A5 *Most relevant keywords.*

Source: author's compilation

6.2. FIGURES

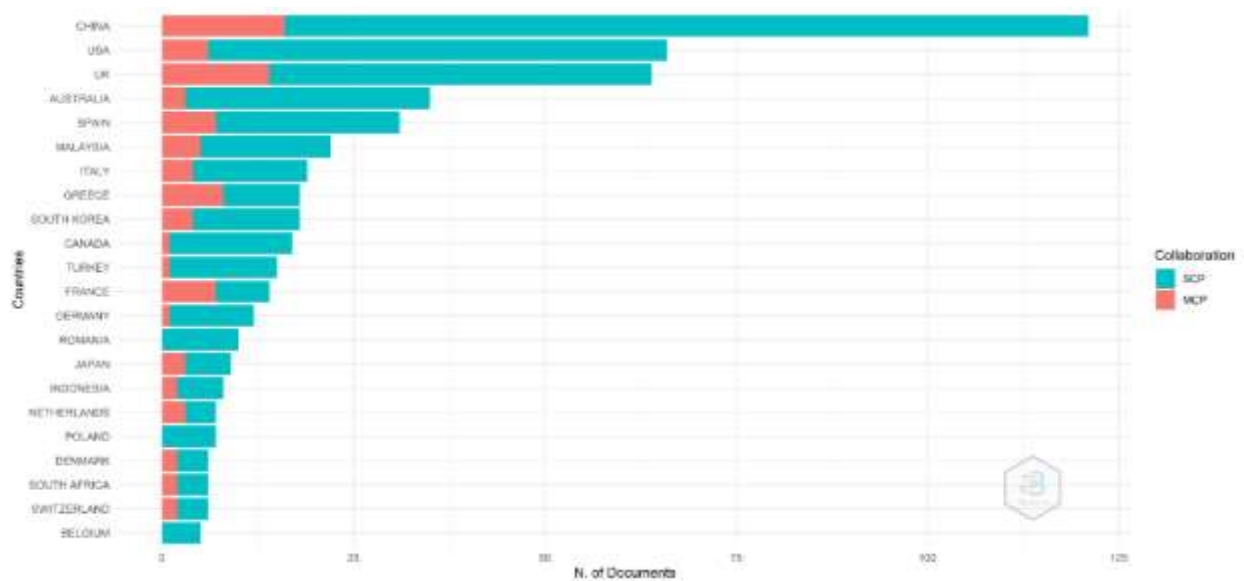


Figure A1 Most collaborative countries.

MCP=Multi-Country Publication; SCP=Singular Country Publications. Source: author's compilation

Figure A1 shows the production of the 22 most collaborative countries. The blue shade represents the amount of singular publications that each country had, and the pink shade the amount of articles that were published by a single country.

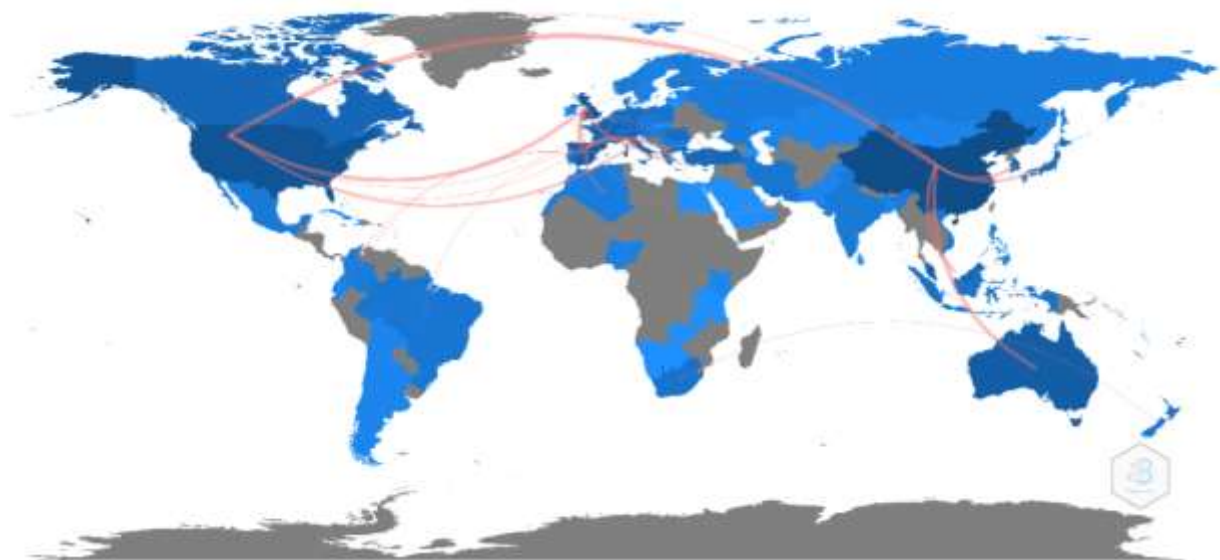


Figure A2 Collaboration World map.

Source: author's production

Figure A2 shows the collaboration world map, where the shades of the countries is darker when their production is higher and grey when the countries have not produced any ICH-related articles. The edges represent the collaborations between countries, the larger the edge the higher the amount of articles written together.

Figure A3 to Figure A5 represent the authors' keywords from the first to third sub-period respectively. The x axis shows the density and the y axis the centrality. The higher the density the higher the cohesion within a cluster, the higher the centrality the higher the interaction of the cluster with others.

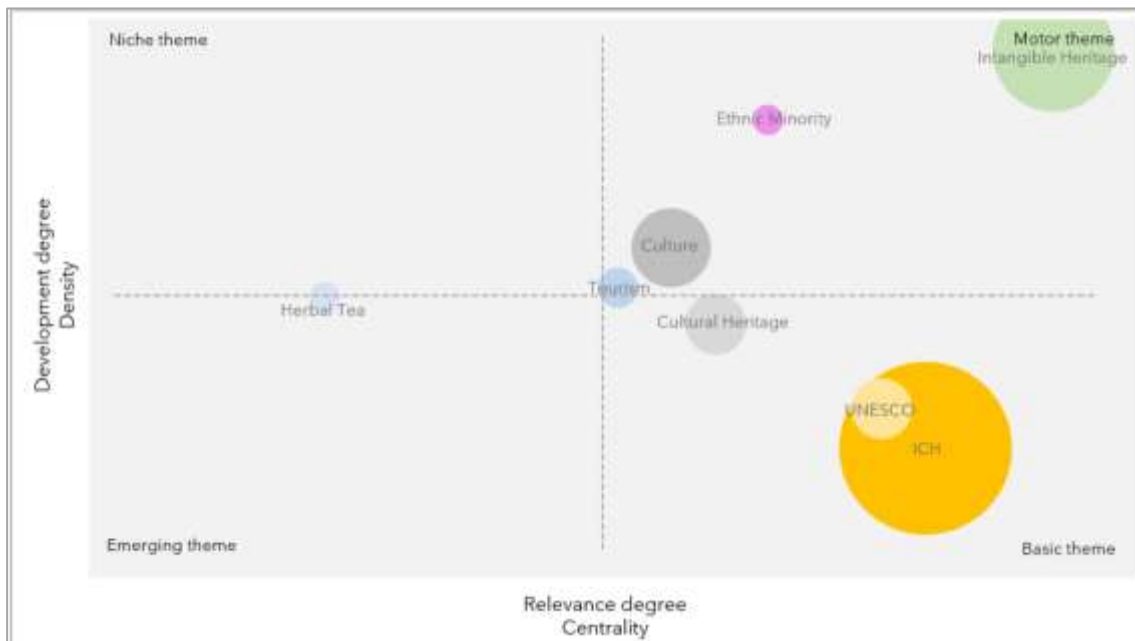


Figure A3 Strategic diagram for the sub-period A: 2007-2012.
Source: author's compilation

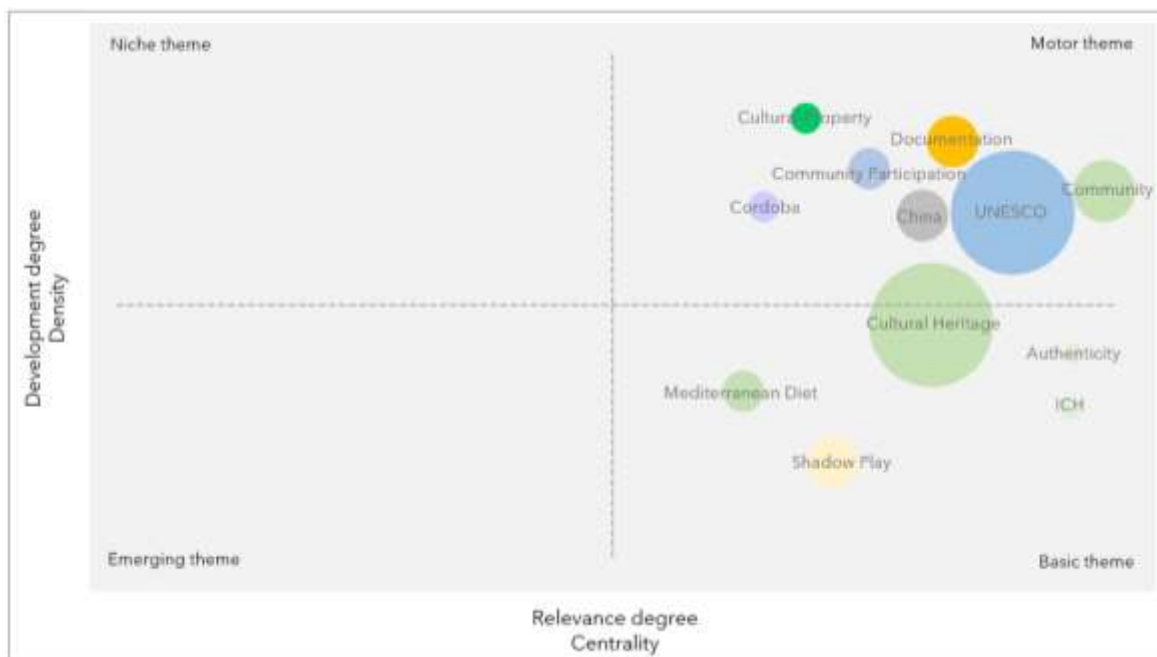


Figure A4 Strategic diagram for the sub-period B: 2013-2016.
Source: author's compilation

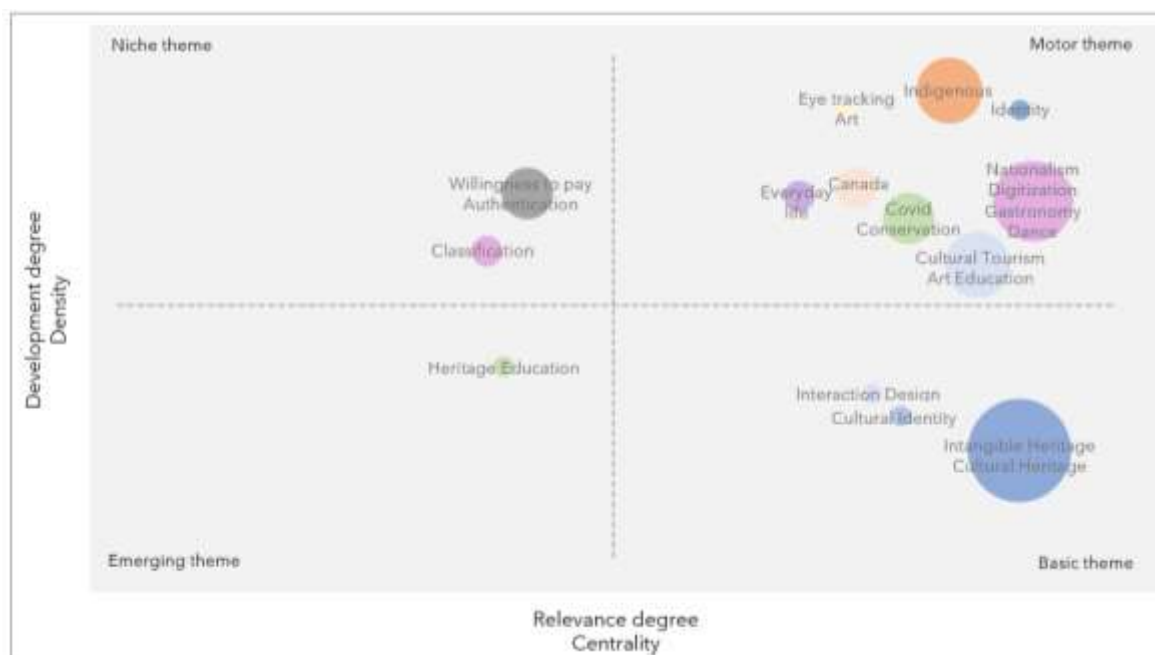


Figure A5 Strategic diagram for the sub-period C: 2017-2020.

Source: author's compilation

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