

Twenty years of the *Journal of Knowledge Management*: a bibliometric analysis

Magaly Gaviria-Marin, Jose M. Merigo and Simona Popa

Abstract

Purpose – In 2017, the Journal of Knowledge Management (JKM) celebrates its 20th anniversary. This study aims to show an updated analysis of their publications to provide a general overview of the journal, focusing on a bibliometric analysis of its publications between 1997 and 2016.

Design/methodology/approach – The methodology involves two procedures: a performance analysis and a science mapping analysis of JKM. The performance analysis uses a series of bibliometric indicators such as h-index, productivity and citations. This analysis considers different dimensions, including papers, authors, universities and countries. VOSviewer software is used to carry out the mapping of science of JKM, which, based on the concurrence of key words and co-citation points of view, seeks to graphically analyze the structure of the references of this journal.

Findings – There is a positive evolution in the number of publications (although with certain oscillations), which shows a growing interest in publishing in JKM. The USA and the UK lead the publications in this journal, although at a regional level, Europe is the most productive. The low participation of emerging economies in JKM is also observed.

Practical implications – The paper will identify the leading trends in the journal in terms of papers, authors, institutions, countries, journals and keywords. This study is useful for obtaining a quick snapshot of what is happening in the journal.

Originality/value – From the historical record of JKM publications, this study presents an exclusive bibliometric analysis of its publications until 2016 and identifies its main trends.

Keywords Scopus, Bibliometrics, h-index, Science mapping, Co-citation, Journal analysis

Paper type Research paper

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1. Introduction

Several researchers already affirmed in the 1960s that knowledge would have a key role in both economic development and enterprise productivity (Drucker, 1968; Polanyi, 1966). Currently, thousands of studies have been developed around this concept. Knowledge management (KM) is one of the most discussed topics and has become a topic of general interest in several disciplines related to management, such as the management of information resources (Nissen *et al.*, 2000), human resources (Rastogi, 2000; Wang and Ariguzo, 2004), entrepreneurship and family business (Centobelli *et al.*, 2017; Scuotto *et al.*, 2017), innovation (Bai and Yu, 2017), international business (Kasper *et al.*, 2013), among others. In addition, KM has captured the attention of professionals who implement its fundamental concepts (Serenko *et al.*, 2011) and of researchers and academics who see the potential of this field to unify various disciplines (Holsapple and Wu, 2008).

As a result of the growing attention and importance generated by KM at both the academic and business levels during the past several decades, the *Journal of Knowledge Management* (JKM) was introduced in 1997. The JKM is a journal interested in the publication of academic research and practical information dealing with best practices regarding all aspects related to KM in organizations. Likewise, one of its main objectives is

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to identify innovative KM strategies and theoretical and practical framework concepts that could be implemented in real-world situations. JKM publications include quantitative and qualitative research that through extensive studies and/or academic case studies in companies, government agencies and other organizations, show how to develop strategies, tools, techniques and technologies to successfully apply KM in organizations (Soto-Acosta and Cegarra-Navarro, 2016). In addition, the journal is devoted to analyzing KM as a firm capability capable of enhancing organizational learning and innovation (Del Giudice and Della Peruta, 2016; Martinez-Conesa *et al.*, 2017).

The first issue of the JKM was published in 1997 under the direction of the founding editor Dr Rory Chase. Professor Dr Elias G. Carayannis also served as the editor in chief, and Professor Dr Manlio del Giudice was recently appointed as the current editor in chief. Since its early beginnings and under the direction of the different editors, the JKM has had remarkable growth and development, publishing more than 100 issues, 19 of which have been special issues. In addition, the JKM has been indexed in all the major bibliographic databases, including Scopus, since 1997, and more recently and importantly, since 2011, it has been indexed by the Web of Science's Journal Citation Report (JCR). The JKM's JCR impact factor (IF, hereafter) has been growing, and in 2016, it reached its highest IF, as it was first indexed in the Web of Science, being ranked 82nd of 193 journals in the subject category of management. This growth has allowed the JKM to position itself as the main journal in the field of KM (Serenko and Bontis, 2017).

In 2016, JKM celebrates its 20th anniversary. In these instances, it is common to develop commemorative activities that include the organization of an editorial (Barley, 2016), a review (Van Fleet, 2006) or a special issue (Meyer and Winer, 2014). Schwert (1993) emphasizes the importance of making a bibliometric description of the journal because it provides general historical results that allow the development of a critical evaluation of its impact and evolution. Therefore, the main objective of this study is to offer a bibliometric analysis of the JKM, which will enable us to observe in detail the evolution of its scientific publications. This will allow us to answer the following questions:

- Q1. What are the total number of publications in JKM?
- Q2. What are the core JKM articles?
- Q3. Who are the main researchers, universities and countries in JKM?
- Q4. What are the core journals used in JKM?
- Q5. What is the affiliations of researchers?
- Q6. What are the topics main in articles of JKM?
- Q7. What are the structural networks among the actors who publish in JKM?

To achieve this goal and answer the previous questions, this work is based on two bibliometric procedures that include a performance analysis and a scientific mapping analysis. The first one is based on the analysis of productivity and influence indicators, such as the number of documents published and citations. Although the *h*-index is also used, which is a composite indicator that seeks to balance the productivity and influence of scientific actors (Hirsch, 2005). The second of them – the science mapping analysis – is carried out through the VOSviewer software (van Eck and Waltman, 2010), which includes bibliographic coupling (Kessler, 1963), co-citation analysis (Small, 1973), citation, co-authorship and co-occurrence of keywords. This type of analysis is novel and important as it has not been used previously in the JKM, and it will give a comprehensive overview of the journal's main research trends.

The specific analysis of journals through bibliometric methodologies is currently gaining attention among scientific journals. In fact, recently, several bibliometric studies analyzing the specific repositories of several journals have been published. For example,

Technovation (García-Merino et al., 2006) and *Knowledge-Based Systems* (Cobo et al., 2015) published a bibliometric analysis for their 25th anniversary. Similarly, *Knowledge Management Research and Practice* did so for its 10th anniversary (Walter and Ribièrè, 2013). Other journals, such as *International Journal of Intelligent Systems* (Merigó et al., 2017) and *Journal of Business and Industrial Marketing* (Valenzuela et al., 2017), included bibliometric studies for their 13th anniversary, while still others, such as *Computers and Industrial Engineering* (Cancino et al., 2017) and *European Journal of Operational Research* (Laengle et al., 2017), did so for their 40th anniversary. Thus, many research journals are celebrating their anniversaries by publishing bibliometric analyses to present an overview of their research trends and more influential publications.

The rest of this paper is organized as follows. In Section 2, this work presents the methodology. Section 3 presents the results of the bibliometric analysis. Section 4 shows the graphical analysis. Finally, in Section 5, the article analyses the conclusions and limitations of the study.

2. Methodology

Several years ago, data collection and bibliometric analysis processes were performed manually (Garfield, 1955). However, currently, these processes have been facilitated thanks to the development of information and communication technologies (Merigó et al., 2015a). These technologies have also contributed to the development of some methodologies for the analysis of scientific databases, such as scientometrics (Pritchard, 1969), bibliometrics (Yoon and Lee, 2012), and/or the quantitative study of library materials (Bonilla et al., 2015; Broadus, 1987; Small, 1973).

Bibliometrics help to explore, organize and analyze large amounts of data (Daim et al., 2006). According to Albort-Morant et al. (2017), the bibliometric analyses will make it possible to know the past, understand the advances of the investigations, although, at the same time, allows the development of future lines of research through its indicators (Cadavid-Higueta et al., 2012). The above particularities have promoted the use of bibliometrics in different disciplines. In fact, there are several areas of business and management that have particularly been studied from this perspective, such as management (Podsakoff et al., 2008), social entrepreneurship (Rey-Martí et al., 2016), international entrepreneurship (Baier-Fuentes et al., 2018), business incubator (Albort-Morant and Ribeiro-Soriano, 2016) or knowledge management (Gaviria-Marin et al., 2018), among several others. In addition, this methodology has been applied to other research areas, such as education (Diem and Wolter, 2013) and medicine (Franks et al., 2006). Moreover, to provide an overview of their publications, several journals have recently decided to apply this methodology. Among others, we can mention the *Journal of Business Research* (Merigó et al., 2015b), the *European Journal of Marketing* (Martínez-López et al., 2018), the *International Journal of Physical Distribution and Logistics Management* (Ellinger and Chapman, 2016), the *International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems* (Wang et al., 2018) or *Information Sciences* (Merigó et al., 2018).

Several methodologies are used in bibliometric analysis to visualize the qualitative and quantitative changes in a specific research field. For example, Durieux and Gevenois (2010), mention that bibliometrics involves:

- quantity indicators, which measure productivity;
- quality indicators, which measure the impact; and
- structural indicators, which measure the connections between the various scientific actors.

Likewise, [Cobo et al. \(2011\)](#), notes that bibliometrics usually includes two procedures: performance analysis and science mapping analysis. The first of these procedures aims to evaluate different groups of scientific actors, such as countries, universities and authors, by measuring the productivity and impact of their scientific activity. The science mapping analysis focuses on showing the structural and dynamic patterns of scientific research ([Börner et al., 2003](#)). According to [Barabási et al \(2002\)](#), the structural indicators allow to observe the formation and evolution of the relations between the diverse actors of a determined scientific body. In summary, bibliometrics has the ability to establish a complete profile of a specific field of study or journal.

In this study, we show an overview of JKM trends, through a bibliometric analysis that includes performance analysis and science mapping. In the performance analysis, included indicators that measure both scientific productivity and the influence of a field of knowledge are included ([Garfield, 1955](#)). Note that this is consistent with that described by [Durieux and Gevenois \(2010\)](#). Specifically, we used the number of publications, the number of citations and some thresholds of citations, among other related indicators ([Merigó, 2015a, 2015b](#)). In addition, we use the *h*-index that combines into a single indicator of the number of publications and the number of citations[1]. This indicator has become popular among researchers given its ease of calculation and interpretation ([Thelwall, 2008](#)). In this sense, [Vanclay \(2007\)](#) points out that the *h*-index is a robust indicator that is insensitive to a set of poorly cited papers, and therefore represents quite well the performance of a scientific field. In this manner, for an analysis unit that has an *h*-index equal to N, it means that it has N documents cited at least N times ([Hirsch, 2005](#)). For example, if an author has an *h*-index of 20, then the author has 20 documents that received at least 20 citations. In summary, keep in mind that the indicators described are popular among researchers.

This work also presents a science mapping analysis of the JKM bibliographic material. This type of analysis is conducted by using various types of software. Among them we can mention, for example, CitNetExplorer ([van Eck and Waltman, 2014](#)), SciMAT ([Cobo et al., 2012](#)), Bibexcel ([Persson et al., 2009](#)), CiteSpace ([Chen, 2006](#)) or VOSviewer ([van Eck and Waltman, 2010](#)). In this study, VOSviewer software was used. This software combines visualization techniques and clustering, which enables the completion of different analyses: bibliographic coupling ([Kessler, 1963](#)), co-citation ([Small, 1973](#)) and co-occurrence of key words. Bibliographic coupling occurs when two documents cite the same third article; co-citation measures the most cited documents by taking into account when two documents receive a citation of the same third work, whereas co-occurrence of keywords or a co-occurrence network refers to the group of keywords that co-occur in at least two different articles over a period of time with the aim of analyzing the most used keywords in the documents ([Li et al., 2017](#)). In addition, in some studies, co-citation and co-occurrence analysis are used in a longitudinal framework to analyze and follow the evolution of a field of research over consecutive periods of time ([Garfield, 1994](#)). Finally, it is important to point that there are other types of analyses, such as the analysis of co-words, which maps the force of association between the elements of information in the textual data, which can be thematic, semantic, conceptual or cognitive ([Callon et al., 1983](#)).

Bibliographic data may be obtained from various databases, including SciELO, Google Scholar, Scopus or Web of Science (WoS), since they have the capacity to compile large-scale data and produce statistics based on bibliometric indicators ([Archambault et al., 2009](#)). Recently, Scopus has become a good alternative to WoS ([Vieira and Gomes, 2009](#)), as it has been designed for bibliographic searches and analysis of citations ([Meho and Yang, 2007](#)), enabling it to perform the same search tasks as WoS. In fact, Scopus contains over 69 million records, including approximately 22,000 journals, of which almost 3,500 are freely accessible, as well as over 560 book series, 280 business journals, over 150,000 books and nearly 8 million conference papers pertaining to 100,000 worldwide events ([Scopus, 2017](#)). In addition, some researchers have noted that the strength of this

database is related to its extensive coverage regarding social sciences research (Mongeon and Paul-Hus, 2016). Although these reasons seem to be sufficient to work with only Scopus references, the process of searching JKM records was performed using both WoS and Scopus databases. However, we realized that WoS only contains JKM records since the year 2011, while Scopus, in contrast, contained bibliographic records since the journal's creation in 1997. Therefore, the data used in this study were mainly obtained from the Scopus database.

Once we defined the database, it was considered *Journal of Knowledge Management* as the only keyword, to obtain the bibliographic records of JKM. Additionally, a publication period between 1997 and 2016 and only articles, reviews, notes and letters were included to focus on scientific contributions (Merigó et al., 2016). As a result of this process, the search query yielded a sample of 1068 documents.

3. Results

3.1 Performance analysis

3.1.1 Publication and citation structure of Journal of Knowledge Management. The JKM celebrates 20 years of publishing documents related to all aspects of KM in organizations. The journal was launched in 1997 and presented four issues in its first volume. In subsequent years, the number of issues per volume was variable. However, since 2004, the JKM has been publishing six issues per volume annually. Throughout its existence, the JKM has followed the methodology of peer-reviewed evaluation for its research output. These editorial policies have allowed it to position itself as the leading journal in the field of knowledge management, also increasing the number of publications (see Figure 1).

In addition, Table I shows the JKM's progress in relation to the annual and cumulative productivity of the papers and published issues. Additionally, this table makes a comparison of productivity between the two decades of its existence. It is observed that during the first decade (1997-2006), 415 documents were published, while in the second decade (2007-2016), the output was 653 documents. This difference represents an increase of 238 publications (22.4 per cent). It can be observed that the years 2008 and 2009 represent the peak of JKM publications, with more than 70 articles, whereas the year 2016 represents an important moment for the journal, as it exceeded 1,000 publications. In total, 20 volumes and 106 numbers containing 1,068 documents (964 articles, 104 reviews)

Figure 1 Number of JKM publications by year

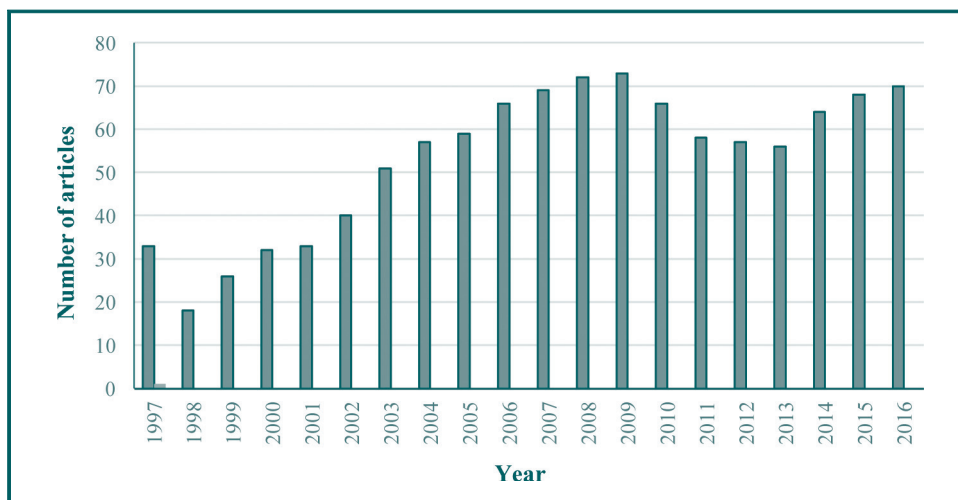


Table I Annual productivity of the JKM

Period	Volume	Issue						TP	AP	TI	AI
		(1)	(2)	(3)	(4)	(5)	(6)				
Decade 1	1997 Vol 1	9	8	8	8			33	33	4	4
	1998 Vol 2	9	9					18	51	2	6
	1999 Vol 3	8	6	5	7			26	77	4	10
	2000 Vol 4	7	8	8	9			32	109	4	14
	2001 Vol 5	10	7	7	9			33	142	4	18
	2002 Vol 6	8	8	8	7	9		40	182	5	23
	2003 Vol 7	9	10	10	11	11		51	233	5	28
	2004 Vol 8	10	10	10	8	9	10	57	290	6	34
	2005 Vol 9	10	10	10	10	9	10	59	349	6	40
	2006 Vol 10	11	9	11	12	14	9	66	415	6	46
Decade 2	2007 Vol 11	12	9	11	13	13	11	69	484	6	52
	2008 Vol 12	12	12	12	12	14	10	72	556	6	58
	2009 Vol 13	13	9	12	14	13	12	73	629	6	64
	2010 Vol 14	12	11	10	7	9	17	66	695	6	70
	2011 Vol 15	10	10	10	8	9	11	58	753	6	76
	2012 Vol 16	10	10	8	11	10	8	57	810	6	82
	2013 Vol 17	9	10	9	9	9	10	56	866	6	88
	2014 Vol 18	12	12	8	10	13	9	64	930	6	94
	2015 Vol 19	10	13	12	10	13	10	68	998	6	100
	2016 Vol 20	9	11	11	12	15	12	70	1068	6	106

Note: The issue column (N), shows the number of papers by issue

Sources: Web page of JKM; Abbreviations: TP: total papers; AP: accumulated publications; TI: total issues; AI: accumulated issues

have been published in the JKM thus far. Note that [Table I](#) indicates the amount of issues with the respective number of papers by each of them.

The JKM has a high number of citations, reaching a total of 23,669 citations (see [Table II](#)). In this sense, the year 2005 is one of the most important for several reasons. First, the JKM

Table II Annual citation structure of the JKM

YEAR	TP	TC	≥200	≥100	≥50	≥20	≥10	≥5	≥1	=0	H	TC/TP	IF
1997	33	313	–	1	2	1	4	12	7	6	7	9.48	–
1998	18	248	–	1	–	1	4	2	8	2	7	13.78	–
1999	26	569	–	1	3	2	8	3	6	3	12	21.88	–
2000	32	526	–	1	–	8	3	8	10	2	11	16.44	–
2001	33	937	1	–	3	4	3	11	8	3	11	28.39	–
2002	40	777	1	–	1	5	9	12	9	3	13	19.43	–
2003	51	1012	–	1	5	8	10	8	17	2	16	19.84	–
2004	57	1009	–	2	4	6	6	16	20	3	13	17.70	–
2005	59	3359	3	5	13	24	10	1	3	–	32	56.93	–
2006	66	2002	1	1	11	18	14	11	6	4	25	30.33	–
2007	69	2265	2	1	11	21	15	13	2	4	28	32.83	–
2008	72	1874	–	1	7	24	25	11	3	1	26	26.03	–
2009	73	2380	1	4	10	16	24	12	5	1	25	32.60	–
2010	66	1677	–	1	8	25	14	12	6	–	26	25.41	–
2011	58	1543	–	–	7	26	14	10	1	–	25	26.60	1.248
2012	57	1224	–	1	1	26	16	7	6	–	23	21.47	1.474
2013	56	1016	–	–	4	14	21	11	5	1	19	18.14	1.257
2014	64	461	–	–	–	2	17	19	24	2	12	7.20	1.586
2015	68	359	–	–	–	1	11	20	33	3	11	5.28	1.689
2016	70	118	–	–	–	–	–	4	43	23	4	1.69	2.053
Total	1068	23669	9	21	90	232	228	203	222	63	–	–	–
Percentage papers	100%	–	0.84%	1.97%	8.43%	21.72%	21.35%	19.01%	20.79%	5.90%	–	–	–
Accumulated papers	–	–	9	30	120	352	580	783	1005	1068	–	–	–
Percentage	100%	–	0.84%	2.81%	11.24%	32.96%	54.31%	73.31%	94.10%	100%	–	–	–
Accumulated papers	–	–	–	–	–	–	–	–	–	–	–	–	–

Notes: Abbreviations: TP and TC: total papers and citations; ≥200, ≥100, ≥50, ≥20, ≥10, ≥5 and ≥1: number of papers with equal or more than 200, 100, 50, 20, 10, 5, 1 and 0 citations (without accumulating documents from previous thresholds); H = h-index; TC/TP: number the citations per paper; IF: impact factor of the Journal Citation Reports

obtained the maximum number of cites per year in 2005, with 3,359 citations. This figure corresponds to 14.2 per cent of the journal's total number of citations. Second, as a consequence, the citations per paper (TC/TP) of the journal in that year accounted for 56,9. Third, the highest *h*-index in the history of the JKM (*h*-index = 32) was reached in 2005. Remember that the *h*-index seeks to represent in a single indicator both the productivity and influence of a scientific actor in a given scientific field (Alonso *et al.*, 2009). In the JKM case, the interpretation of the *h*-index, corresponding to the year 2005, means that 32 papers published that year received at least 32 citations. Moreover, 2005 is the first year that the JKM published two special issues. With regard to the citation threshold for the total published papers, 120 documents (11.23 per cent) received at least 50 citations. Additionally, 460 documents (43 per cent) achieved between 10 and 49 citations, while 425 documents (39.8 per cent) obtained between 1 and 9 citations. Finally, 63 documents (5.9 per cent) did not receive citations. It is noteworthy that 23 of these documents (2.2 per cent) correspond to recently published documents in 2016.

Table III explains in detail the number of authors per document and year published in the JKM. Note that there is a positive trend towards collaboration between researchers who publish in the JKM (see ACR indicator). In the final row, the average number of authors per paper is indicated. Note that 31.6 per cent of the published documents are of individual authorship. It is also observed that the normal trend for this journal is that documents are written by two or three co-authors (33.9 per cent and 23.9 per cent, respectively).

Usually, the number of citations is used to provide an overview of the most influential research. The number of citations represents the popularity and influence of each article in the scientific community (Merigó *et al.*, 2017). However, it should be mentioned that this analysis may have some biases since the motivations for citing a document are diverse (Krampen *et al.*, 2007). Table IV shows the 50 most cited JKM publications. Note that in case of a tie in the number of citations, the most recent document appears first.

Table III Total authors per paper

Year	TP	No. of researchers								CR	TAY	ACR
		1	2	3	4	5	6	7	8-10			
1997	33	23	6	1	2	1	-	-	-	10	47	2.40
1998	18	11	6	1	-	-	-	-	-	7	26	2.14
1999	26	15	7	2	1	1	-	-	-	11	44	2.64
2000	32	17	11	4	-	-	-	-	-	15	49	2.13
2001	33	14	10	7	1	-	1	-	-	19	65	2.68
2002	40	23	11	4	2	-	-	-	-	17	65	2.47
2003	51	18	19	10	4	-	-	-	-	33	110	2.79
2004	57	22	20	9	4	2	-	-	-	35	137	3.29
2005	59	20	19	9	5	3	2	1	1	39	137	3.00
2006	66	20	24	13	6	3	-	-	-	46	141	2.63
2007	69	29	16	19	4	1	-	-	-	40	135	2.65
2008	72	26	25	14	3	3	1	-	-	46	149	2.67
2009	73	21	23	24	5	-	-	-	-	52	156	2.60
2010	66	16	31	12	5	1	1	-	-	50	140	2.48
2011	58	10	21	22	5	-	-	-	-	48	137	2.65
2012	57	10	18	24	5	-	-	-	-	47	132	2.60
2013	56	10	21	21	3	1	-	-	-	46	128	2.57
2014	64	11	23	19	8	3	-	-	-	53	151	2.64
2015	68	10	27	22	8	-	1	-	-	58	160	2.59
2016	70	12	24	19	9	5	1	-	-	58	160	2.55
Total	1068	338	362	256	80	24	7	1	1	730	2269	
Average		31.6	33.9	23.9	7.5	2.2	0.7	0.1	0.1			

Notes: Abbreviations available in Table I, except for CR: research with co-authorship (sum of papers with two or more researchers, do not include singles authors); TAY: total authors by years in JKM; ACR: Average number of authors per year in manuscript with coauthored

Table IV The most-cited documents in the JKM

<i>R</i>	<i>Title</i>	<i>Name of authors</i>	<i>YFT</i>	<i>AGE</i>	<i>TC</i>	<i>TC/AGE</i>
1	Motivation and barriers to participation in virtual knowledge-sharing communities of practice	Ardichvili A., Page V., Wentling T	2003	13	666	51.23
2	Overcoming cultural barriers to sharing knowledge	McDermott R., O'Dell C	2001	15	485	32.33
3	Three-dozen knowledge-sharing barriers managers must consider	Riege A	2005	11	437	39.72
4	Knowledge management in organizations: Examining the interaction between technologies, techniques, and people	Bhatt, G.D	2001	15	421	28.06
5	Complex acts of knowing: Paradox and descriptive self-awareness	Snowden, D	2002	14	405	28.92
6	Knowledge management and innovation: Networks and networking	Swan, J., Newell, S., Scarbrough, H., Hislop, D	1999	17	375	22.05
7	Managing effective knowledge transfer: An integrative framework and some practice implications	Goh S.C	2002	14	339	24.21
8	Knowledge sharing in context: The influence of organizational commitment, communication climate and CMC use on knowledge sharing	Van Den Hooff, B., Ridder, J.A	2004	12	318	26.50
9	Knowledge management, innovation and firm performance	Darroch J	2005	11	292	26.54
10	Managing organizational knowledge as a strategic asset	Bollinger, A.S., Smith, R.D	2001	15	286	19.06
11	Knowledge Management: An Introduction and Perspective	Wiig, K.M	1997	19	255	13.42
12	The role of tacit and explicit knowledge in the workplace	Smith, E.A	2001	15	246	16.40
13	How does knowledge management influence innovation and competitiveness?	Carneiro, A	2000	16	227	14.18
14	Organizational culture and knowledge sharing: Critical success factors	Al-Alawi A.I., Al-Marzooqi N.Y., Mohammed Y.F	2007	9	220	24.47
15	Knowledge management initiatives: Learning from failure	Storey, J., Barnett, E	2000	16	217	13.56
16	A critical review of knowledge management as a management tool	Mårtensson, M	2000	16	213	13.31
17	Cultural influences on knowledge sharing through online communities of practice	Ardichvili A., Maurer M., Li W., Wentling T., Stuedemann R	2006	10	205	20.50
18	Knowledge-enabled customer relationship management: Integrating customer relationship management and knowledge management concepts	Gebert, H., Geib, M., Kolbe, L., Brenner, W	2003	13	202	15.53
19	An empirical study of the important factors for knowledge-management adoption in the SME sector	Wong K.Y., Aspinwall E	2005	11	200	18.18
20	Strategies for implementing knowledge management: Role of human resources management	Soliman, F., Spooner, K	2000	16	194	12.12
21	Reviewing the knowledge management literature: Towards a taxonomy	Kakabadse N.K., Kakabadse A., Kouzmin A	2003	13	192	14.76
22	The role of knowledge management in innovation	du Plessis M	2007	9	188	20.88
23	Knowledge management in a public organization: A study on the relationship between organizational elements and the performance of knowledge transfer	Omar Sharifuddin Syed-Ikhsan S., Rowland F	2004	12	186	15.50
24	Sense-making theory and practice: an overview of user interests in knowledge seeking and use	Dervin B	1998	18	184	10.22
25	Web 2.0 implications on knowledge management	Levy M	2009	7	184	26.28
26	Collaborative climate and effectiveness of knowledge work – an empirical study	Sveiby, K.-E., Simons, R	2002	14	178	12.71
27	A resource-based view of organizational knowledge management systems	Meso, P., Smith, R	2000	16	176	11.00
28	Harmonisation of knowledge management – comparing 160 KM frameworks around the globe	Heisig P	2009	7	175	25.00

(continued)

Table IV

<i>R</i>	<i>Title</i>	<i>Name of authors</i>	<i>YFT</i>	<i>AGE</i>	<i>TC</i>	<i>TC/AGE</i>
29	Managing human resources toward achieving knowledge management	Yahya, S., Goh, W.-K	2002	14	171	12.21
30	Organisational factors and knowledge management within large marketing departments: An empirical study	Bennett, R., Gabriel, H	1999	17	170	10.00
31	SME and large organisation perceptions of knowledge management: Comparisons and contrasts	Mcadam, R., Reid, R	2001	15	170	11.33
32	Developing a measure of knowledge management behaviors and practices	Darroch, J	2003	13	168	12.92
33	Characterizing knowledge management in the small business environment	Wong K.Y., Aspinwall E	2004	12	167	13.91
34	Integrating knowledge management technologies in organizational business processes: Getting real time enterprises to deliver real business performance	Malhotra, Y	2005	11	167	15.18
35	Knowledge management and organizational performance: An exploratory analysis	Zack M., McKeen J., Singh S	2009	7	167	23.85
36	Communities of practice in the distributed international environment	Hildreth P., Kimble C., Wright P	2000	16	165	10.31
37	The knowledge management spectrum – understanding the KM landscape	Binney D	2001	15	165	11.00
38	Knowledge management at SMEs: Five peculiarities	Desouza K.C., Awazu Y	2006	10	161	10.06
39	Towards knowledge networking	Seufert, A., Von Krogh, G., Bach, A	1999	17	149	8.76
40	A Socio-Technical View of Knowledge Sharing at Buckman Laboratories	Pan, S.L., Scarbrough, H	1998	18	147	8.16
41	Organizing knowledge in the knowledge development cycle	Bhatt, G.D	1999	17	143	8.41
42	The transfer of knowledge and the retention of expertise: The continuing need for global assignments	Bender, S, Fish, A	2000	16	141	8.81
43	Questions in knowledge management: Defining and conceptualising a phenomenon	Uit Beijerse R.P	1999	17	140	8.23
44	Knowledge management in small and medium-sized companies: Knowledge management for entrepreneurs	Beijerse, R.P.U	2000	16	136	8.50
45	Managing knowledge: The link between culture and organizational learning	Pérez-López, S., Montes-Peón, J.M., Vázquez-Ordás, C.J	2004	12	135	11.25
46	Determinants of knowledge sharing using Web 2.0 technologies	Paroutis S., Saleh A.A	2009	7	134	19.14
47	The Knowledge Agenda	Skyrme D., Amidon D	1997	19	128	6.73
48	Knowledge, Creativity and Innovation	Gurteen D	1998	18	128	7.11
49	Integrating complexity theory, knowledge management and organizational learning	McElroy, M.W	2000	16	123	7.68
50	Why KM projects fail: a multi-case analysis	Chua A., Lam W	2005	11	124	11.27

Notes: Abbreviations: R: rank; YFP: year first publication; AGE = (Current year: 2016) -YFP; TC: total citations; TC/AGE: citations per year

The most cited work of the JKM is the one written by [Ardichvili, Page and Wentling \(2003\)](#), which was cited more than 600 times. Another important issue is that the three items best positioned in this ranking focus on barriers to sharing knowledge in different organizational contexts. For example, [Ardichvili et al. \(2003\)](#) develop an empirical study focused on personal motivations to participate in a virtual organizational environment. [McDermott and O'Dell \(2001\)](#) empirically study organizational culture as one of the barriers to the exchange of knowledge. Finally, [Riege \(2005\)](#) develops a literature review on the barriers to sharing knowledge, classifying them as individual, organizational and technological. Taking into account the potential of knowledge management to unify diverse areas of knowledge ([Holsapple and Wu, 2008](#)), the remaining articles of this list are developed in the intersection with diverse thematic such as the networks, the TICs, the innovation, among others.

Another aspect to highlight in this ranking is that there are six authors who have at least two documents. These six researchers are as follows: Ardichvili, Wentling, Darroch, Wong, Aspinwall and Bhatt. Of these authors, Ardichvili and Wentling are noted for having two documents together within the 20 most cited articles of the JKM. Likewise, Darroch and Bhatt stand out as independent authors possessing two articles among the 50 most cited publications.

It is also important to mention the 50 documents most cited by documents published in the JKM (see [Table V](#)). The list contains 44 articles and six books. Of the first three positions on this list, two correspond to books written by [Nonaka and Takeuchi \(1995\)](#) and [Davenport and Prusak \(1998\)](#). The publications of these authors are considered seminal works in the field of KM. In this list, Nonaka has authored or co-authored five documents. This list also reveals the large number of works related to KM's theoretical, conceptual and practical aspects.

Another interesting analysis is to identify who cites the JKM. [Table VI](#) reports the fifty journals with the largest number of articles citing JKM publications. Notice that the only requirement is having a paper with at least one citation referring to the JKM, although the journal can be cited several times. This list is also organized by quinquennium.

In this list it is observed that the first researchers to publish in JKM (Q1), include references from the *Journal of Intellectual Capital*, *Learning Organization*, *Decision Support Systems*, *Journal of Workplace Learning* and *Journal of Information Science*. In the following periods, there is an increase of new journals citing JKM, mainly from fields such as Knowledge Management, Business Management and Computer Systems. Another relevant aspect is that the JKM reaches the highest position with an increasing trend of self-cites over time. This is quite logical since journals often quote themselves. The journal that gives the second most citations to the JKM is "Knowledge Management Research and Practice". Finally, there is a positive trend of new journals citing the JKM.

Moving forward in this perspective, [Table VII](#) presents the number of articles that mention JKM according to the year, author, university and country. Note that, although they are presented in a single table, the data must be analyzed independently according to each analysis unit (year, author, university and country).

From the beginning of JKM (1997) until 2016, 7050 articles have cited JKM. Keep in mind that when a scientific actor cites some article published in JKM, he is citing JKM. In the table, note that more than 50 per cent of the articles that have been cited to JKM have done so in the past four years. This shows the growing influence achieved by JKM. During the period under review, the lead author in citing JKM is Bontis with 41 of his documents. Likewise, a great diversity of universities around the world has quoted JKM. Of these universities, the University of Technology Malaysia stands out for citing 73 JKM documents. Finally, as expected, the USA and the UK are the two countries with the highest number of documents citing JKM publications.

3.1.2 Main authors, institutions and countries. In this section an analysis of data related to the main authors, institutions and countries that publish in the JKM is presented.

[Table VIII](#) presents the number of publications of the most productive authors in the JKM and also shows its general productivity in academic journals. To observe the performance of these authors, the *h*-index of each author is included, along with the total number of publications, the number of citations, among other bibliometric indicators. This table also gives information on the tendency of authors to publish individually (SA). Note in case of a tie in productivity (TP), the number of citations per author is taken into account.

[Table VIII](#) indicates that the most productive authors in the JKM (TP) are Serenko, with 12 papers, followed by Bontis, with 11 papers. However, it should be noted that Bontis is a productive author in other journals as well and is a highly cited author. The other interesting

Table V Most cited documents in JKM publications

<i>R</i>	<i>Cited reference</i>	<i>Type</i>	<i>Citations</i>	<i>TL</i>
1	Nonaka, I., Takeuchi, H., (1995); The knowledge creating company; Oxford University Press	B	300	256
2	Davenport, T., Prusak, L., (1998); Working knowledge: how organizations manage what they know; Harvard Business School Press	B	151	149
3	Nonaka, I., A dynamic theory of organizational knowledge creation (1994); Organization Science, 5 (1), pp. 14-37	A	137	137
4	Alavi, M., Leidner, D.E., Knowledge management and knowledge management systems: conceptual foundations and research issues (2001); MIS Quarterly, 25 (1), pp. 107-136	A	101	101
5	Cohen, W., Levinthal, D., Absorptive capacity: a new perspective on learning and innovation (1990); Administrative Science Quarterly, 35 (1), pp. 128-152	A	96	96
6	Grant, R.M., Toward a knowledge based theory of the firm (1996); Strategic Management J, 17, pp. 109-122	A	76	76
7	Nahapiet, J., Ghoshal, S., Social capital, intellectual capital, and the organizational advantage (1998); Academy of Management Review, 23 (2), pp. 242-266	A	67	61
8	Barney, J., Firm resources and sustained competitive advantage (1991); J Management, 17 (1), pp. 99-120	A	66	4
9	Kogut, B., Zander, U., Knowledge of the firm, combinative capabilities, and the replication of technology (1992); Organization Science, 3 (3), pp. 383-397	A	65	64
10	Gold, A., Malhotra, A., Segars, A., Knowledge management: an organizational capabilities perspective (2001); J Management Information Systems, 18 (1), pp. 185-214	A	59	59
11	Szulanski, G., Exploring internal stickiness: impediments to the transfer of best practice within the firm (1996); Strategic Management J, 17, pp. 27-43	A	56	56
12	Polanyi, M., (1966); The tacit dimension; Routledge & Kegan Paul	B	49	44
13	Nonaka, I., The knowledge creating company (1991); Harvard Business Review, 69 (6), pp. 96-104	A	44	42
14	Hansen, M.T., Nohria, N., Tierney, T., What's your strategy for managing knowledge? (1999); Harvard Business Review, 77 (2), pp. 106-116	A	40	40
15	Lave, J., Wenger, E., (1991); Situated Learning: legitimate peripheral participation; Cambridge University Press	B	40	39
16	Teece, D., Pisano, G., Shuen, A., Dynamic capabilities and strategic management (1997); Strategic Management J, 18 (7), pp. 509-533	A	40	38
17	Hansen, M.T., The search-transfer problem: the role of weak ties in sharing knowledge across organization subunits (1999); Administrative Science Quarterly, 44 (1), pp. 82-111	A	35	35
18	Zack, M., Developing a knowledge strategy (1999); California Management Review, 41 (3), pp. 125-145	A	35	35
19	Argote, L., Ingram, P., knowledge transfer: a basis for competitive advantage in firms (2000); Organizational Behavior and Human Decision Processes, 82 (1), pp. 150-169	A	33	33
20	Podsakoff, P.M., Mackenzie, S.B., Lee, J.Y., Podsakoff, N.P., Common method biases in behavioral research: a critical review of the literature and recommended remedies (2003); J Applied Psychology, 88 (5), pp. 879-903	A	32	32
21	Nonaka, I., Konno, N., The concept of 'ba': building a foundation for knowledge creation (1998); California Management Review, 40 (3), pp. 40-54	A	31	29
23	Wenger, E., (1998); Communities of practice: learning, meaning and identity; Cambridge University Press	B	31	30
24	Grant, R.M., Prospering in dynamically-competitive environments: organizational capability as knowledge integration (1996); Organization Science, 7 (4), pp. 375-387	A	30	28
25	March, J., Exploration and exploitation in organizational learning (1991); Organization Science, 2 (1), pp. 71-87	A	30	30
26	Granovetter, M., The strength of weak ties (1973); American J Sociology, 78 (6), pp. 1360-1380	A	29	29
27	Nonaka, I., Toyama, R., Konno, N., SECI, ba and leadership: a unified model of dynamic knowledge creation (2000); Long Range Planning, 33 (1), pp. 5-34	A	28	27
28	Bock, G.W., Zmud, R.W., Kim, Y.G., Lee, J.-N., Behavioral intention formation in knowledge sharing: examining the roles of extrinsic motivators, social-psychological forces, and organizational climate (2005); MIS Quarterly, 29 (1), pp. 87-111	A	27	27
29	Lee, H., Choi, B., Knowledge management enablers, processes, and organizational performance: an integrative view and empirical examination (2003); J Management Information Systems, 20 (1), pp. 179-228	A	27	27
30	Nelson, R., Winter, S., (1982); An evolutionary theory of economic change; Belknap Press	B	27	26

(continued)

Table V

<i>R</i>	<i>Cited reference</i>	<i>Type</i>	<i>Citations</i>	<i>TLS</i>
31	Wernerfelt, B., A resource-based view of the firm (1984); <i>Strategic Management J</i> , 5 (2), pp. 171-180	A	27	27
32	Spender, J.C., Making knowledge the basis of a dynamic theory of the firm (1996); <i>Strategic Management J</i> , 17, pp. 45-62	A	26	26
33	Von Krogh, G., Care in knowledge creation (1998); <i>California Management Review</i> , 40 (3), pp. 133-153	A	26	25
34	Argote, L., McEvily, B., Reagans, R., Managing knowledge in organizations: an integrative framework and review of emerging themes (2003); <i>Management Science</i> , 49 (4), pp. 571-582	A	25	25
35	McDermott, R., O'Dell, c., Overcoming cultural barriers to sharing knowledge (2001); <i>J Knowledge Management</i> , 5 (1), pp. 76-85	A	25	24
36	Wasko, M., Faraj, S., Why should i share? examining social capital and knowledge contribution in electronic networks of practice (2005); <i>MIS Quarterly</i> , 29 (1), pp. 35-57	A	25	25
37	Zack, M.H., Managing codified knowledge (1999); <i>Sloan Management Review</i> , 40 (4), pp. 45-58	A	25	24
38	Gupta, A.K., Govindarajan, V., Knowledge flows within multinational corporations (2000); <i>Strategic Management J</i> , 21 (4), pp. 473-496	A	24	24
39	Riege, A., Three-dozen knowledge-sharing barriers managers must consider (2005); <i>J Knowledge Management</i> , 9 (3), pp. 18-35	A	24	24
40	Fornell, C., Larcker, D.F., Evaluating structural equation models with unobservable variables and measurement error (1981); <i>J Marketing Research</i> , 18 (1), pp. 39-50	A	23	23
41	Ruggles, R., The state of the notion: knowledge management in practice (1998); <i>California Management Review</i> , 40 (3), pp. 80-89	A	23	21
42	Serenko, A., Bontis, N., Global ranking of knowledge management and intellectual capital academic journals (2009); <i>J Knowledge Management</i> , 13 (1), pp. 4-15	A	23	22
43	Davenport, T.H., De Long, D.W., Beers, M.C., Successful knowledge management projects (1998); <i>Sloan Management Review</i> , 39 (2), pp. 43-57	A	21	5
44	Wang, S., Noe, R.A., Knowledge Sharing: a review and directions for future research (2010); <i>Human Resource Management Review</i> , 20 (2), pp. 115-131	A	21	21
45	Zahra, S.A., George, G., Absorptive capacity: a review, reconceptualization, and extension (2002); <i>Academy Management Review</i> , 27 (2), pp. 185-203	A	21	21
46	Cabrera, A., Collins, W.C., Salgado, J.F., Determinants of individual engagement in knowledge sharing (2006); <i>International J Human Resource Management</i> , 17 (2), pp. 245-264	A	20	20
47	De Long, D.W., Fahey, L., Diagnosing cultural barriers to knowledge management (2000); <i>Academy Management Executive</i> , 14 (4), pp. 113-127	A	20	20
48	Earl, M., Knowledge management strategies: toward a taxonomy (2001); <i>J Management Information Systems</i> , 18 (1), pp. 215-233	A	20	19
49	Zander, U., Kogut, B., Knowledge and the speed of the transfer and imitation of organizational capabilities: an empirical test (1995); <i>Organization Science</i> , 6 (1), pp. 76-92	A	20	20
50	Eisenhardt, K.M., Building theories from case study research (1989); <i>Academy Management Review</i> , 14 (4), pp. 532-550	A	19	19

Notes: Abbreviations: Type (A: article; B: book); TLS: total link strength

fact is that Serenko and Bontis are researchers who usually publish together. In fact, they have published jointly on 8 occasions so far. A general overview of their work shows a preference for research in areas such as KM, intellectual capital and scientometrics methodologies, among others. Additionally, regarding cited authors (TC), Andreas Riege is the most cited author in the list, with 586 citations, followed by Kuan Yew Wong, with 453 and Serenko and Bontis, with more than 350 citations each.

Another interesting issue is the analysis of the more influential and productive universities and institutions publishing in the JKM. With this objective in mind, [Table IX](#) indicates the most productive universities within the journal. This table also presents other indicators such as the year they began publishing in the JKM (YFP), total citations (TC), the *h*-index and citation thresholds. Additionally, it shows the ranking of the university in the Academic Ranking of World Universities (ARWU) and in the Quacquarelli and Symonds (QS) university ranking.

Table VI Citing articles of the JKM: Journals

R	Journal	TP	Q1	Q2	Q3	Q4
1	<i>Journal of Knowledge Management</i>	557	17	91	182	267
2	<i>Knowledge Management Research and Practice</i>	132	0	8	44	81
3	<i>Proceedings of the European Conference on Knowledge Management</i>	103	0	19	84	0
4	<i>Vine</i>	99	0	3	38	58
5	<i>Journal of Information and Knowledge Management</i>	96	0	11	28	57
6	<i>Journal of Intellectual Capital</i>	81	5	10	18	48
7	<i>International Journal of Knowledge Management</i>	79	0	0	27	52
8	<i>Knowledge and Process Management</i>	72	0	0	17	55
9	<i>Learning Organization</i>	72	1	13	30	28
10	<i>International Journal of Knowledge Based Development</i>	63	0	0	18	45
11	<i>Expert Systems with Applications</i>	61	0	5	22	34
12	<i>Computers in Human Behavior</i>	58	0	0	8	50
13	<i>Management Decision</i>	56	0	5	19	32
14	<i>Espacios</i>	53	0	0	3	50
15	<i>International Journal of Knowledge Management Studies</i>	51	0	2	22	27
16	<i>Industrial Management and Data Systems</i>	46	0	3	17	26
17	<i>International Journal of Information Management</i>	46	0	0	15	31
18	<i>Business Process Management Journal</i>	44	0	4	17	23
19	<i>Journal of Business Research</i>	44	0	1	2	41
20	<i>International Journal of Innovation and Learning</i>	41	0	2	24	15
21	<i>International Journal of Technology Management</i>	38	0	6	20	12
22	<i>Asian Social Science</i>	36	0	0	1	35
23	<i>International Journal of Project Management</i>	35	0	1	4	30
24	<i>International Journal of Knowledge Management</i>	33	0	17	16	0
25	<i>International Journal of Knowledge Culture and Change Management</i>	31	0	0	23	8
26	<i>Knowledge Management and E Learning</i>	29	0	0	6	23
27	<i>Service Industries Journal</i>	28	0	0	12	16
28	<i>International Journal of Knowledge and Learning</i>	27	0	3	14	10
29	<i>World Applied Sciences Journal</i>	27	0	0	3	24
30	<i>Information and Management</i>	25	0	1	3	21
31	<i>International Journal of Human Resource Management</i>	25	0	1	8	16
32	<i>International Journal of Innovation Management</i>	25	0	0	4	21
33	<i>Decision Support Systems</i>	24	1	1	6	16
34	<i>Journal of Enterprise Information Management</i>	24	0	3	10	11
35	<i>International Journal of Business Information Systems</i>	23	0	0	9	14
36	<i>Journal of Workplace Learning</i>	23	1	6	8	8
37	<i>International Business Management</i>	22	0	0	0	22
38	<i>International Journal of Production Research</i>	22	0	0	5	17
39	<i>Iranian Journal of Information Processing Management</i>	22	0	0	0	22
40	<i>Journal of Manufacturing Technology Management</i>	22	0	2	5	15
41	<i>International Journal of Learning and Intellectual Capital</i>	21	0	2	12	7
42	<i>Journal of Information Science</i>	21	1	1	13	6
43	<i>Total Quality Management and Business Excellence</i>	20	0	2	9	9
44	<i>Technological Forecasting and Social Change</i>	19	0	0	7	12
45	<i>Information Development</i>	18	0	1	1	16
46	<i>International Journal of Business Innovation and Research</i>	18	0	0	7	11
47	<i>International Journal of Managing Projects in Business</i>	18	0	0	4	14
48	<i>Journal of Management Development</i>	18	0	3	5	10
49	<i>Management Research Review</i>	18	0	0	5	13
50	<i>Perspectivas em Ciencia da Informacao</i>	18	0	0	10	8

Notes: Abbreviations available in Table II, except for Q = quinquennium: number of papers published in the JKM in the period considered (Q1: 1997-2001; Q2: 2002-2006; Q3: 2007-2011; Q4: 2012-2016)

The results revealed that the most productive universities in the JKM are Cranfield University, with 14 papers and the Technologic Institute of Monterrey, with 13 papers. Note that both universities commenced publishing in the journal from the first year the journal was launched. It is also noteworthy that the Technologic Institute of Monterrey is one of the two Latin American university in this ranking. At the regional level, European universities are the

Table VII Citing articles classified by year, authors, universities and countries

R	Years	TP	Author	TP	University	TP	Country	TP
1	2016	1,192	Bontis, N	41	U. Tech. Malaysia	73	USA	1056
2	2015	979	Akhavan, P	30	Multimedia U	66	UK	984
3	2014	827	Serenko, A	28	Islamic Azad U	66	Australia	560
4	2013	752	Yigitcanlar, T	26	Hong Kong Polytechnic U	62	China	500
5	2012	703	Ooi, K.B	23	Loughborough U	60	Spain	471
6	2011	562	Metaxiotis, K	21	U. Tehran	60	Malaysia	403
7	2010	505	Grimaldi, M	20	Queensland U. Tech	58	Taiwan	343
8	2009	427	Kant, R	20	McMaster U	55	Canada	342
9	2008	332	Cegarra-Navarro, J.G	18	U. Tech. Lappeenranta	50	Iran	297
10	2007	226	Chong, S.C	18	Tampere U. Technology	48	Italy	281
11	2006	153	Ergazakis, K	18	U. Malaya	46	Finland	269
12	2005	106	Wong, K.Y	18	Nanyang Tech. U	46	India	257
13	2004	102	Soto-Acosta, P	17	McMaster U	44	Germany	219
14	2003	65	Cricelli, L	16	U. Valencia	44	Brazil	213
15	2002	57	Kianto, A	16	City U. Hong Kong	44	Netherlands	173
16	2001	39	Schiama, G	16	RMIT U	43	Sweden	154
17	2000	14	Lin, B	15	Cranfield U	43	South Korea	145
18	1999	1	Bolisani, E	14	Griffith U	42	France	144
19	1998	5	Lytras, M.D	14	U. Manchester	42	Greece	130
20	1997	3	McAdam, R	14	U. Granada	41	New Zealand	119
21	-	-	Scarso, E	14	Northern U. Malaysia	40	South Africa	105
22	-	-	Carrillo, F.J	13	National Cheng Kung U	37	Singapore	89
23	-	-	Durst, S	13	U. Stud Padova	36	Turkey	88
24	-	-	Jafari, M	13	Tech. Monterrey	36	Portugal	87
25	-	-	Lin, H.F	13	U. Murcia	35	Thailand	85
26	-	-	Lönnqvist, A	13	U. Sao Paulo - USP	34	Denmark	82
27	-	-	Oliveira, M	13	National Tech. U. Athens	33	Norway	77
28	-	-	Singh, M.D	13	U. Politec Valencia	33	Mexico	67
29	-	-	Andreeva, T	12	Brunel U. London	33	Ireland	66
30	-	-	Chua, A.Y.K	12	Aston U	33	Pakistan	63
31	-	-	Chong, C.W	11	Ulster U	33	Austria	63
32	-	-	Gonzalez, R.V.D	11	Iran U. Science and Tech	32	United Arab Emirates	61
33	-	-	Laihonen, H	11	U. Putra Malaysia	32	Japan	59
34	-	-	Psarras, J	11	U. Federal Santa Catarina	31	Poland	59
35	-	-	Tseng, S.M	11	U. Queensland	31	Switzerland	58
36	-	-	Boateng, H	10	Lakehead U	31	Indonesia	56
37	-	-	Colomo-Palacios, R	10	Deakin U	31	Slovenia	55
38	-	-	Davison, R.M	10	MARA U. Tech	30	Saudi Arabia	51
39	-	-	Edwards, J.S	10	National U. Singapore	30	Israel	47
40	-	-	Koskinen, K.U	10	Aalto U	30	Jordan	46
41	-	-	Lee, G.G	10	U. Oulu	29	Lithuania	44
42	-	-	Martins, M.F	10	U. Sevilla	29	Colombia	43
43	-	-	Rowley, J	10	U. Oviedo	29	Russian Federation	40
44	-	-	Tsui, E	10	U. Salford	29	Nigeria	38
45	-	-	Urbancová, H	10	U. Science Malaysia	29	Belgium	37
46	-	-	Dumay, J	9	National U. Malaysia	28	Egypt	33
47	-	-	Grandinetti, R	9	U. Nottingham	28	Czech Republic	33
48	-	-	Holsapple, C.W	9	Payame Noor U	28	Romania	23
49	-	-	Lee, V.H	9	Copenhagen Business Sch	28	Vietnam	22
50	-	-	Lin, C	9	U. South Australia	28	Ghana	20

Note: Abbreviations available in [Table II](#)

most productive in the JKM, followed by those of Oceania, America and Asia. Moreover, among the universities with more citations (TC) are Griffith University, with 846 citations, the Cranfield University, with 406 citations and the University of Lakehead, with 402 citations. Although it depends on many variables, it is likely that these results are obviously obtained by the human capital hired by the universities and the networks they generate. For example, the documents of Andreas Riege, in Griffith U. or Alexander Serenko, in Lakehead U., have

Table VIII Most-productive and influential authors publishing in the JKM

R	Author Name	University	C	TP	LA	SA	YFT	JKM					General description					
								TC	C/P	H	T50	C-JKM	TP	TC	C/P	H	C-G	CA
1	Serenko, A	Lakehead U	CAN	12	9	1	2007	380	32	10	1	246	86	1978	23	24	1403	34
2	Bontis, N	McMaster U	CAN	11	3	0	2003	364	33	8	1	259	105	4991	48	30	3304	91
3	Carrillo, F.J	Tech. Monterrey	MEX	9	2	5	1997	65	7	6	0	46	32	145	5	7	106	17
4	Chase, R.L	Milton Keynes Council	UK	8	0	8	2006	178	18	3	0	178	12	178	15	3	171	0
5	Metaxiotis, K	U. Piraeus	GRE	7	2	0	2004	179	26	6	1	149	113	1146	10	17	958	64
6	Sun, P.Y.T	U. Waikato	NZL	6	1	1	2005	199	33	4	1	192	15	359	24	10	342	6
7	Ergazakis, K	National Tech. U. Athens	GRE	6	3	0	2004	173	29	6	1	146	41	442	11	12	362	27
8	Massingham, P	U. Wollongong	AUS	6	1	4	2004	107	18	5	0	100	18	183	10	7	168	8
9	Schiama, G	U. Arts London	UK	5	2	0	2008	148	30	5	0	128	83	1655	20	22	1315	39
10	Kianto, A	U. Tech. Lappeeranta	FIN	5	1	0	2011	142	28	3	0	133	47	548	12	12	429	40
11	McAdam, R	Ulster U	UK	5	3	0	2001	112	22	5	0	108	174	2371	14	25	2118	111
12	Shariq, S.Z	Stanford U	USA	5	0	3	1997	28	6	3	0	26	9	36	4	3	33	10
13	Chatzkel, J	Mayfield Village	USA	5	0	5	2002	17	3	3	0	17	20	97	5	5	89	6
14	Riege, A	E.ON Düsseldorf	DEU	4	1	2	2005	586	147	4	1	563	8	714	89	6	690	6
15	Chua, A.Y.K	Nanyang Tech. U	SGP	4	2	1	2005	235	59	5	1	234	135	1565	12	22	1347	63
16	Heisig, P	U. App. Sci. Potsdam	DEU	4	1	1	2004	195	49	2	1	192	22	255	12	5	247	39
17	Yigitcanlar, T	Queensland U. Tech	AUS	4	2	1	2007	195	49	4	1	140	103	1041	10	17	526	82
18	Lytras, M.D	American College Greece	GRE	4	2	1	2002	150	38	3	0	147	130	1222	9	20	887	117
19	Psarras, J	National Tech. U. Athens	GRE	4	0	0	2004	142	36	4	1	130	224	2723	12	26	2090	146
20	Herschel, R.T	U. Philadelphia	USA	4	2	0	2001	95	24	4	0	95	17	385	23	8	375	19
21	Wiig, K.M	Knowledge Research Inst	USA	4	0	4	1997	90	23	4	0	90	19	787	41	9	743	12
22	Senoo, D	Tokyo Inst. Tech	JPN	4	0	0	2008	84	21	3	0	80	29	405	14	7	383	26
23	Magnier-Watanabe, R	U. Tsukuba	JPN	4	3	0	2008	81	20	3	0	78	30	165	6	7	154	16
24	Lee, W.B	Hong Kong Polytechnic U	HKG	4	0	0	2005	68	17	3	0	65	431	5813	13	42	4325	42
25	Petruzzelli, A.M	Polytech Bari	ITA	4	3	1	2007	60	15	4	0	54	52	509	10	14	385	26
26	Mentzas, G	National Tech. U. Athens	GRE	4	0	0	2004	57	14	3	0	57	183	1483	8	19	1349	140
27	Sáenz, J	U. Deusto	ESP	4	2	0	2006	54	14	3	0	53	25	175	7	6	167	12
28	Scarso, E	U. Padua Studies	ITA	4	1	0	2009	50	13	3	0	49	49	296	6	9	269	18
29	Bolisani, E	U. Padua Studies	ITA	4	2	0	2009	50	13	3	0	49	59	301	5	8	271	33
30	Dumay, J	Macquarie U	AUS	4	0	0	2015	49	12	5	0	33	53	1092	21	17	543	42
31	López-Sáez, P	U. Complutense Madrid	ESP	4	1	0	2010	48	12	4	0	48	21	310	15	8	303	13
32	Giudice, M.D	Paris Sch. Business	FRA	4	2	0	2014	35	9	3	0	30	8	47	6	3	38	10
33	Smith, A.D	Robert Morris U	USA	4	2	2	2002	27	7	3	0	27	200	1646	8	21	1063	29
34	Suh, E	Pohang U. Science and Tech	KOR	4	0	0	2003	27	7	2	0	26	46	1338	29	15	1239	50
35	Millar, C.C.J.M	Hult International Business Sch	USA	4	2	0	2004	26	7	2	0	26	41	245	6	7	239	38
36	Wong, K.Y	U. Malaysia Tech	MAL	3	2	0	2004	453	151	5	1	418	143	2118	15	20	1764	137
37	Levy, M	Bar-Ilan U	ISR	3	0	3	2009	246	82	3	1	244	4	246	62	3	244	0
38	Kimble, C	KEDGE Business Sch	FRA	3	1	0	2000	244	81	3	1	236	67	748	11	11	684	42
39	Awazu, Y	Lille U	FRA	3	0	1	2004	198	66	2	1	198	32	505	16	13	487	19
40	Andreeva, T	Polytech. Bari	IRL	3	2	0	2011	164	55	3	1	156	22	231	11	6	209	17
41	Bhatt, G.D	Morgan State U	USA	3	0	3	2000	139	46	3	1	128	25	1022	41	13	971	16
42	Durst, S	U. Skovde	SWE	3	2	0	2012	133	44	2	1	120	36	226	6	7	191	39
43	Liebowitz, J	Harrisburg U. Science Tech	USA	3	0	2	2000	110	37	2	1	110	115	1413	12	20	1326	83
44	Rowley, J	Manchester Metropolitan U	UK	3	0	0	2010	105	35	3	0	92	219	3512	16	32	3220	88
45	Eppler, M.J	U. St. Gallen	SWI	3	2	0	2007	94	31	3	1	93	75	1697	23	15	1519	48
46	Ganesh, L.S	Indian Inst. Tech	IND	3	0	0	2009	88	29	2	0	88	31	961	31	30	900	30
47	Lerro, A	U. Basilicata	ITA	3	2	0	2008	82	27	3	0	75	30	305	10	10	249	10
48	Murray, A	Applied Knowledge Sciences	USA	3	0	0	2004	69	23	3	0	69	7	80	11	4	78	6
49	Stankosky, M	Hong Kong Polytech. U	CHI	3	0	0	2004	69	23	3	0	69	32	171	5	7	171	22
50	Ordóñez de Pablos, P	U. Oviedo	ESP	3	2	1	2002	65	22	3	0	65	169	1132	7	20	817	131

Notes: Abbreviations available in Table IV except for LA: lead author; SA: single author; C/P = citation per paper; H = *h*-index; Top 50 = papers among the fifty most cited; C-JKM: cited by the JKM; C-G: cited generally; CA: total co-authors; countries (AUS: Australia; CAN: Canada; CHE: Switzerland; CHI: China; DEU: Germany; ESP: Spain; FIN: Finland; FRA: France; GRC: Greece; IND: India; IRL: Ireland; ISR: Israel; ITA: Italy; JPN: Japan; KOR: South Korea; MEX: Mexico; MYS: Malaysia; NZL: New Zealand; SGP: Singapore; SWE: Sweden; UK: United Kingdom; USA: United States)

helped to position their universities as the most influential institutions in JKM. When considering the *h*-index, Lakehead University and Nanyang University of Technology are the best positioned universities. It should also be noted that the Campania University Luigi Vanvitelli is in 33rd place and is the institution that most recently started to publish in the JKM (2012). Finally, it is observed that only 24 per cent of universities are ranked in the top 300 of the Academic Ranking of World Universities (ARWU). In this same ranking stand, Stanford University and the University of Manchester are within the Top 50.

Table IX The productive and influential institutions publishing in the JKM

R	Institution	Country	YFP	TP	TC	H	C/P	≥100	≥50	≥25	≥5	≥1	ARWU	QS	T50
1	Cranfield U	UK	1997	14	406	7	29	1	1	3	4	4	–	–	1
2	Tech. Monterrey	MEX	1997	13	112	7	9	0	0	1	8	3	–	238	–
3	Lakehead U	CAN	2007	13	402	11	31	0	3	3	5	2	–	–	1
4	Nanyang Tech. U	SGP	2001	12	320	11	27	1	0	3	8	0	101-150	13	1
5	Hong Kong Polytechnic U	CHI	2005	11	251	8	23	0	0	5	4	1	301-400	116	–
6	Macquarie U	AUS	2000	11	167	8	15	0	0	1	10	0	201-300	229	–
7	McMaster U	CAN	2003	11	365	8	33	0	3	3	3	2	83	149	1
8	Griffith U	AUS	2005	10	846	8	84	1	4	2	2	1	301-400	329	–
9	National Technical U. Athens	GRE	2001	10	231	8	23	0	1	2	6	1	–	376	1
10	U. Manchester	UK	2003	9	162	6	18	0	1	0	5	2	35	33	1
11	Queensland U. Tech	AUS	2004	9	284	7	32	0	3	1	4	1	201-300	263	1
12	Copenhagen Business Sch	DNK	1999	9	159	7	18	0	0	2	6	1	–	–	–
13	Loughborough U	UK	2004	8	297	6	37	1	1	0	6	0	–	228	1
14	Stanford U	USA	1997	8	65	5	8	0	0	1	4	2	2	3	–
15	Lappeenranta U. Tech	FIN	2002	8	158	4	20	0	2	0	1	5	–	–	1
16	U. Murcia	ESP	2007	7	112	5	16	0	0	3	2	1	–	701	–
17	U. Padova	ITA	2009	7	124	5	18	0	0	2	3	1	–	309	–
18	George Washington U	USA	2004	7	171	7	24	0	1	2	3	1	301-400	327	–
19	U. Waikato	NZL	2005	7	204	4	29	1	0	2	1	3	–	338	1
20	U. Oviedo	ESP	1999	7	104	5	15	0	0	1	4	2	–	–	–
21	Tampere U. Tech	FIN	2003	7	83	6	12	0	0	1	5	1	–	356	–
22	Japan Advanced Inst. Sci. Tech	JPN	2003	7	176	6	25	0	0	3	3	1	–	–	–
23	U. Wollongong	AUS	2003	7	109	5	16	0	0	2	3	2	301-400	243	–
24	Ulster U	IRL	2003	7	159	7	23	0	1	1	5	0	–	551-600	–
25	Stockholm Sch. Economics	SWE	2000	7	91	5	13	0	0	1	4	2	–	–	–
26	U. Tech. Sydney	AUS	2000	7	76	5	11	0	0	2	4	1	301-400	218	–
27	U. St. Gallen	SWI	1999	7	239	6	34	0	2	1	3	1	–	329	1
28	Victoria U. Wellington	NZL	2003	6	116	5	19	0	1	0	4	0	301-400	229	–
29	U. Maine	USA	2001	6	104	5	17	0	1	0	4	1	–	–	–
30	U. Newcastle	AUS	2010	6	95	4	16	0	0	2	2	1	301-400	256	–
31	Bangkok U	THA	2008	6	55	4	9	0	0	0	3	3	–	–	–
32	U. Twente	NLD	2004	6	26	2	4	0	0	0	2	1	301-400	188	–
33	U. Warwick	UK	1998	6	266	4	44	1	1	1	1	2	151-200	48	1
34	U. Campania Luigi Vanvitelli	ITA	2012	6	57	4	10	0	0	1	2	3	–	–	–
35	U. Complutense Madrid	ESP	2010	6	86	5	14	0	0	0	6	0	301-400	226	–
36	SKEMA Business Sch	FRA	2004	6	95	4	16	0	1	0	3	1	–	–	–
37	U. Castilla-La Mancha	ESP	2011	5	125	5	25	0	1	0	4	0	–	–	–
38	U. Deusto	ESP	2006	5	81	4	16	0	0	1	3	1	–	–	–
39	Vrije U. Amsterdam	NLD	2007	5	114	4	23	0	1	1	2	1	–	176	–
40	Morgan State U	USA	2000	5	197	5	39	0	1	2	1	1	–	–	1
41	Brunel U. London	UK	2001	5	41	3	8	0	0	1	1	2	401-500	331	–
42	U. Basilicata	ITA	2008	5	149	5	30	0	0	4	1	0	–	–	–
43	U. North Texas	USA	2008	5	91	5	18	0	1	0	4	0	301-400	–	–
44	U. Sydney	AUS	2005	5	92	4	18	0	0	2	2	1	82	45	–
45	Polytechnic Bari	ITA	2008	5	76	5	15	0	0	1	4	0	–	–	–
46	U. Stockholm	SWE	2000	5	55	4	11	0	0	1	2	2	81	182	–
47	Curtin U	AUS	2007	5	96	5	19	0	0	2	3	0	201-300	284	–
48	Korea Advanced Inst. Sci & Tech	KOR	2005	5	133	3	27	0	1	1	1	1	201-300	43	–
49	Chalmers U. Tech	SWE	2006	4	102	4	25	0	1	1	2	0	201-300	132	–
50	U. Sao Paulo	BRA	2012	4	67	4	17	0	0	1	2	1	101-150	143	–

Notes: Abbreviations available in Tables I and VIII, except for ARWU = academic ranking of world universities (only the top 500); QS = world university rankings (only the top 800); countries (DNK: Denmark; THA: Thailand)

To continue characterizing the JKM, Table X shows the most productive and influential countries that normally, through their institutions and researchers, publish in the journal. The indicators that are presented by country are the total number of papers (TP), total number of citations (TC) and the *h*-index (H) and the productivity of each country during the four quinquenniums of the journal's existence. Finally, Table X displays the quantity of papers and citations per million inhabitants. Note that the listing is organized by each country's productivity, though in the case of a tie in productivity, the number of citations is presented.

According to the results presented in Table X, there is great diversity of countries that publish in the JKM. It should be noted that the scientific productivity of countries can vary depending on economic and/or political factors, among others (Gkypali *et al.*, 2016; Ynalvez and Shrum, 2010). The USA, for example, is the country with the most investment in

Table X Temporal evolution of the publications classified by country

R	Country	TP	TC	H	C/P	Q1		Q2		Q3		Q4		P/Po	C/Po	T50
						TP	TC	TP	TC	TP	TC	TP	TC			
1	USA	229	5573	39	24,34	57	1283	72	2360	65	1638	35	292	0,7	17,25	12
2	UK	163	3842	34	23,57	39	487	42	1630	48	1362	34	363	2,5	58,38	11
3	Australia	99	2217	25	22,39	13	120	25	946	29	786	32	365	4,1	92,60	2
4	Spain	70	1113	20	15,90	1	13	21	354	22	560	26	186	1,5	23,92	1
5	China (Hong Kong)	47	825	17	17,55	1	17	8	252	14	350	24	206	0,0	0,60	–
6	Italy	46	681	16	14,80	–	–	3	103	13	239	30	339	0,8	11,24	–
7	Canada	45	1165	17	25,89	2	21	6	394	13	493	24	257	1,2	32,16	2
8	Germany	45	1059	19	23,53	4	47	17	359	14	549	10	104	0,5	12,79	3
9	France	38	403	11	10,61	1	14	8	50	8	269	21	70	0,6	6,01	1
10	Finland	31	709	15	22,87	–	–	8	236	9	305	14	168	5,6	128,83	3
11	Netherlands	29	603	13	20,79	2	165	10	249	7	148	10	41	2,9	60,20	2
12	Sweden	27	320	10	11,85	5	52	8	136	6	106	8	26	2,7	32,02	–
13	India	25	490	11	19,60	0	0	3	131	13	292	9	67	0,0	0,37	–
14	Taiwan	25	475	12	19,00	0	0	4	28	8	328	13	119	1,1	20,18	–
15	South Korea	25	339	11	13,56	0	0	8	113	6	153	11	73	0,5	6,65	–
16	New Zealand	24	973	15	40,54	0	0	7	589	9	311	8	73	5,1	205,01	3
17	Japan	22	325	10	14,77	0	0	6	34	12	279	4	12	0,2	2,56	–
18	Malaysia	21	705	13	33,57	0	0	4	379	4	173	13	153	0,7	22,27	2
19	Greece	19	523	12	27,53	1	7	10	325	8	191	0	0	1,8	48,62	1
20	Denmark	19	335	10	17,63	4	28	7	163	2	90	6	54	3,3	58,27	1
21	Singapore	18	407	12	22,61	1	13	3	39	10	253	4	102	3,2	72,59	1
22	Brazil	16	186	8	11,63	1	1	2	4	5	117	8	64	0,1	0,90	–
23	Switzerland	15	350	8	23,33	2	35	4	143	4	153	5	19	1,8	41,58	1
24	Mexico	15	124	7	8,27	1	7	5	29	7	87	2	1	0,1	1,02	–
25	Israel	13	485	9	37,31	1	3	5	154	6	318	1	10	1,5	56,76	2
26	Austria	11	176	7	16,00	0	0	1	28	7	114	3	34	1,3	20,06	–
27	Thailand	10	94	5	9,40	0	0	3	51	0	0	7	43	0,1	1,37	–
28	South Africa	9	364	7	40,44	0	0	3	41	3	270	3	53	0,2	6,51	1
29	Norway	9	79	6	8,78	1	0	1	6	3	45	4	28	1,7	15,02	–
30	Iran	9	50	5	5,56	0	0	0	3	20	6	30	0	0,1	0,62	–
31	Portugal	7	210	6	30,00	2	48	1	71	1	37	3	54	0,7	20,37	1
32	United Arab Emirates	6	52	5	8,67	0	0	2	13	2	19	2	20	0,6	5,61	–
33	Russian Federation	5	257	4	51,40	0	0	1	90	1	58	3	109	0,0	1,79	2
34	Turkey	5	188	5	37,60	0	0	0	0	4	179	1	9	0,1	2,36	1
35	Ireland	5	137	5	27,40	0	0	1	13	3	67	1	57	1,0	28,69	–
36	Slovenia	4	122	4	30,50	0	0	2	122	0	0	0	0	1,9	59,05	–
37	Poland	4	63	3	15,75	0	0	0	0	2	49	2	14	0,1	1,66	–
38	Saudi Arabia	4	50	4	12,50	0	0	0	0	2	46	2	4	0,1	1,61	–
39	Bahrain	3	265	3	88,33	0	0	0	0	3	265	0	0	2,3	204,79	1
40	Liechtenstein	3	135	3	45,00	0	0	0	0	0	0	3	135	79,3	3570,01	1
41	Colombia	3	82	3	27,33	0	0	0	0	2	58	1	24	0,1	1,70	–
42	Egypt	3	57	3	19,00	0	0	0	0	1	44	2	13	0,0	0,63	–
43	Nigeria	3	37	3	12,33	0	0	0	0	0	0	3	37	0,0	0,20	–
44	Belgium	3	18	2	6,00	1	1	0	0	1	13	1	4	0,3	1,58	–
45	Jamaica	2	279	2	139,50	0	0	0	0	2	279	0	0	0,7	99,15	2
46	Iceland	2	105	1	52,50	0	0	0	0	0	0	2	105	5,9	310,33	1
47	Georgia	2	37	2	18,50	0	0	2	37	0	0	0	0	0,5	9,95	–
48	Peru	2	22	2	11,00	0	0	0	0	1	11	1	11	0,1	0,71	–
49	Pakistan	2	19	2	9,50	0	0	1	8	1	11	0	0	0,0	0,10	–
50	Lebanon	2	15	2	7,50	0	0	0	0	1	7	1	8	0,3	2,51	–

Note: Abbreviations available in Tables VI and VIII, except for P/Po and C/Po = papers and cities per million inhabitants

R&D. Therefore, it is not surprising that it leads the ranking of the most productive countries in JKM, with 229 papers. It is followed by the UK with 163 papers. It should also be noted that these countries occupy the most influential positions with an *h*-index of 39 and 34, respectively. In addition, these two countries have the largest number of papers in the top 50 most cited articles in the journal. Another interesting fact is that both the USA and the UK

have had a high participation rate since the early years of the JKM. However, it is observed that both countries have significantly decreased their productivity in the final period. For example, the USA decreased 47 per cent of its productivity in the past five years (Q4). This is explained by the outstanding productivity of countries such as France, Italy, Malaysia and China, among others. Although it could also be explained by the internationalization of JKM. Finally, note that one of the most productive countries by inhabitant in the JKM is Liechtenstein, although this result is less significant given the population size of this country. Other countries highlighted in this regard are Iceland, Finland and New Zealand.

3.2 Science mapping analysis of Journal of Knowledge Management

The previous section presented some performance indicators of the JKM. To continue characterizing the JKM, this section carries out a science mapping analysis with the bibliographic material. This methodology tries to provide a spatial representation of how the different scientific actors of a dynamically changing field of knowledge relate to each other (Small, 1997). In addition it can be used as a complementary approach to bibliometric performance indicators (Cobo *et al.*, 2012). Therefore, to obtain a more complete and complementary image of the results previously shown, the graphic mapping of the main scientific actors that publish in JKM are presented in this section.

To achieve this goal, this work uses VOSviewer software (van Eck and Waltman, 2010), which visualizes the bibliographic material through bibliographic coupling (Kessler, 1963, 1965), co-occurrence of keywords (Callon *et al.*, 1983), and the analysis of citations and co-citations (Small, 1973). Note that the bibliographic coupling analyzes the papers they cite (Cobo *et al.*, 2011). This occurs when two papers published in a journal cite the same third paper. In the figure, these two papers appear connected but not the third unless they also have a significant degree of bibliographic linkage through other papers. Therefore, for the purposes of this research, the bibliographic coupling will represent the highest productivity in JKM and shows how this research is connected with others (Merigó *et al.*, 2016). On the other hand, the shared citations or co-citations study the cited papers and occur when two papers receive a citation by a third paper that has been published. The figure shows the two papers that have been cited by the article published in the journal but not the latter article. In the case of this study, the co-citation shows the most cited studies in JKM and their connections. The analysis of citations represents the sum of the citations that one scientific actor grants to another and vice versa. Finally, the generated maps are interpreted by observing the frequency, size and centrality of the analyzed factors.

We start this science mapping by referring to co-citation in the JKM. Remember that the purpose of co-citation is to detect when two documents from two different journals receive a citation of the same document from a third journal. The results in Figure 2 are presented with a threshold of 30 citations and the 100 most representative co-citation connections.

According to Figure 2, four clusters are visualized that distinguish the relationships of the journals most cited by JKM documents. Each of these clusters have a significant number of nodes. Note that JKM is the most cited magazine and has the largest network. These results are frequent in the analysis of journal co-citations since authors usually cite articles from the same source. *Organization Science* and *Strategic Management Journal* are equally well cited. Also note that most of the journals correspond to the management area and, to a lesser extent, to other areas of business, strategy and social sciences, such as information systems, human resources and sociology. This not only shows the interest of the different areas of business management in the KM field but also highlights the breadth of topics related to businesses that are published and cited in JKM.

To complement the analysis of Figure 2, Table XI presents the fifty most cited journals or books by documents published in the JKM. This table also presents the global position of

Table XI Most cited journals and books in the JKM

R	Global		1997-2006		2007-2016		CLS	Cit	CLS	Journal	Cit	CLS
	Journal	Cit	CLS	Journal	Cit	CLS						
1	Journal of Knowledge Management	3257	2497	Strategic Management Journal	408	339	Journal of Knowledge Management	2528	1922			
2	Strategic Management Journal	1772	1524	Journal of Knowledge Management	404	286	Strategic Management Journal	1291	1111			
3	Organization Science	1505	1356	Harvard Business Review	303	263	Organization Science	1125	1015			
4	Academy of Management Review	826	782	Organization Science	279	249	Academy of Management Review	640	603			
5	Harvard Business Review	819	750	California Management Review	259	233	Academy of Management Journal	556	525			
6	California Management Review	729	682	Academy of Management Review	155	147	Administrative Science Quarterly	543	511			
7	Administrative Science Quarterly	707	666	Administrative Science Quarterly	136	128	MIS Quarterly	534	494			
8	Academy of Management Journal	685	649	Sloan Management Review	127	118	Management Science	472	449			
9	MIS Quarterly	677	626	Academy of Management Journal	90	86	Harvard Business Review	459	437			
10	Management Science	582	556	Management Science	81	79	California Management Review	443	423			
11	Journal of Management Studies	457	437	Long Range Planning	79	74	Journal of Management Studies	375	357			
12	Journal of Management Information Systems	437	416	Journal of Management Studies	66	63	Research Policy	325	282			
13	Research Policy	380	333	Journal of Management Information Systems	63	60	Journal of Management Information Systems	322	307			
14	Sloan Management Review	327	312	European Management Journal	61	58	Journal of Intellectual Capital	260	233			
15	Journal of Intellectual Capital	326	298	MIS Quarterly	57	53	Knowledge Management Research and Practice	246	234			
16	Journal of Management Knowledge and Process	320	313	Expert System with Applications	52	40	Journal of Management Knowledge and Process	245	239			
17	Management Research and Practice	302	291	Communications of the ACM	51	43	Knowledge and Process Management	232	222			
18	Long Range Planning	292	279	Journal of International Business Studies	48	43	Journal of International Business Studies	222	202			
19	Journal of International Business Studies	280	271	The Knowledge-Creating Company	48	46	Organization Studies	197	191			
20	Journal of International Business Studies	275	250	Journal of Marketing	47	42	Long Range Planning	188	183			
21	Organization Studies	248	241	Journal of Management Working Knowledge: How Organizations Manage What They Know	45	44	Sloan Management Review	187	182			
22	Expert Systems with Applications	217	203	Organizations Manage What They Know	45	45	The Learning Organization	173	162			
23	Journal of Applied Psychology	211	199	Journal of Intellectual Capital	44	43	Journal of Applied Psychology	170	160			
24	The Learning Organization	207	195	Knowledge and Process Management	43	42	Expert Systems with Applications	159	149			
25	Journal of Marketing	197	181	Organizational Dynamics	42	41	Journal of Marketing	142	129			
26	Working Knowledge: How Organizations Manage What They Know	189	189	The Tacit Dimension	42	41	Management Decision	137	133			
27	European Management Journal	185	181	The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation	41	39	Technovation	136	129			

(continued)

Table XI

R	Journal	Global	1997-2006			2007-2016				
			Cit	CLS	Journal	Cit	CLS	Journal		
28	International Journal of Information Management		183	178	Research Policy	40	37	Working Knowledge: How Organizations Manage What They Know	130	130
29	Management Decision		177	171	American Journal of Sociology	38	36	International Journal of Information and Management	129	126
30	Decision Support Systems		162	158	Academy of Management Executive	37	36	Information Management	123	118
31	Technovation		162	154	Organization Studies	37	36	Human Relations	121	117
32	Human Relations		158	153	The Knowledge-Creating Company	35	33	American Journal of Sociology	119	115
33	Information and Management		158	152	Fortune	33	30	European Management Journal	119	117
34	American Journal of Sociology		157	152	Human Relations	32	31	Journal of Business Research	119	115
35	The Tacit Dimension		157	156	Computerworld	31	25	Decision Support Systems	113	111
36	The Knowledge-Creating Company: How Japanese Companies Create The Dynamics of Innovation		143	140	Decision Support Systems	30	29	Industrial and Corporate Change	110	107
37	Industrial and Corporate Change		142	139	Knowledge Management	30	27	The Tacit Dimension	108	108
38	Journal of Business Research		141	137	Management Decision	29	26	Journal of Information Science	106	104
39	Journal of Marketing Research		135	130	Post-Capitalist Society	28	28	Journal of Marketing Research	104	102
40	Information Systems Research		134	131	American Sociological Review	27	24	Organizational Behavior and Human Decision Processes	101	99
41	Organizational Behavior and Human Decision Processes		134	131	An Evolutionary Theory of Economic Change	26	26	Information Systems Research	98	97
42	Communications of the ACM		126	117	Industrial and Corporate Change	26	25	Journal of Knowledge Management Practice	97	90
43	Journal of Information Science		126	124	International Journal of Information Management	25	24	The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation	96	96
44	Academy of Management Executive		122	121	International Journal of Technology Management	25	24	Industrial Management and Data Systems	95	91
45	Industrial Management and Data Systems		120	115	Knowledge Management Handbook	25	24	Journal of Product Innovation Management	94	89
46	International Journal of Technology Management		118	116	The New Organizational Wealth: Managing And Measuring Knowledge-Based Assets	24	24	International Journal of Technology Management	87	85
47	The Knowledge-Creating Company		114	112	American Economic Review	23	21	British Journal of Management	86	85
48	Journal of Product Innovation Management		113	108	Working Knowledge	23	23	Journal of the American Society for Information Science and Technology	86	83
49	Organizational Dynamics		112	111	Organizational Behavior and Human Decision Processes	22	21	Human Resource Management	84	81
50	Human Resource Management		107	103	Intellectual Capital: The New Wealth of Organizations	21	21	Scientometrics	84	73

Notes: Abbreviations available in Table IV, except for – Cit: total citations in the JKM; CLS: co-citation links

Figure 8 presents the co-occurrence of keywords during the first decade of the JKM (1997-2006).

From this figure, it is observed that the words “Innovation”, “Intellectual Capital” and “Tacit Knowledge” are some of the words most used during the first decade of life of the JKM. As mentioned above, Figure 9 shows the most used keywords and their relationships during the second decade (2007-2016) of the JKM.

The figure shows that keywords such as “Knowledge Sharing”, “Knowledge Transfer”, “Innovation” and “Knowledge Creation”, have an intense relationship among them. These keywords are positioned as important topics during the second decade of the existence of the JKM. Table XII presents, in greater detail, the 50 most used keywords during the 20 years of the existence of the JKM. Notice that the results derived from Table XII are similar to those shown in Figures 7, 8 and 9.

4. Conclusions

The JKM focuses on the KM field, and in its 20 years of existence, it has managed to position itself as the main journal in this field of research (Serenko and Bontis, 2017). The objective of this work is to present a bibliometric analysis of all the scientific documents published by the journal during this period of time (1997-2016). The development of this study responds to a current gap in the journal, which does not have studies that analyze its own literature.

From a general perspective, this study provides an information base of the main theoretical and empirical references published during the 20 years of JKM. But in addition, it provides a methodology that researchers can replicate to obtain updated information from their respective fields of research. This article, therefore, is relevant for researchers of various disciplines, but particularly for those who follow the JKM journal, as well as those who are dedicated to the field of knowledge management.

By using the Scopus database, 1,068 JKM documents were collected and analyzed. The results were obtained from two procedures: first, a performance analysis involving both productivity and influence indicators, second, a science mapping analysis of the different actors that are linked to the JKM. Regarding the performance analysis, this paper presents indicators of productivity and the influence of the main countries, institutions and authors publishing in the JKM. The main indicators used were the number of articles, which represents productivity and the number of citations that represent influence. In addition, the *h*-index is used, which is a composite index, which seeks a balance between the number of citations and the number of publications.

According to the results, this work shows that the USA and the UK are strongly positioned and leads the publications in the JKM with the highest productivity and influence. Even so, both countries have decreased their publications in JKM in recent years. This is explained by the internationalization of JKM and by the increase in publications from new countries such as France, Italy, Malaysia or China, among others. At the continental level, Europe is widely dominant in the JKM, with 50 per cent of the most productive and influential universities and authors. In this sense, it is important to highlight the weak productivity of developing countries, such as Latin Americans. Therefore, to enrich the body of literature, JKM should devote efforts to promote the research of knowledge management in emerging economic contexts.

In relation to the analysis of the universities, it is observed that Cranfield University is the most productive institution and stands out for publishing in the first issues of the JKM. However, during the past 10 years and according to the number of citations and the *h*-index, Griffith University has become an influential institution in JKM. As for the authors, we can mention that Serenko and Bontis are the most productive and influential authors

Table XII Most common keyword occurrences in the JKM

R	Global			1997-2006			2007-2016		
	Keyword	OC	TLS	Keyword	OC	TLS	Keyword	OC	TLS
1	Knowledge management	670	579	Knowledge management	238	208	Knowledge management	405	359
2	Knowledge sharing	140	127	Innovation	36	36	Knowledge sharing	127	115
3	Knowledge transfer	98	92	Intellectual capital	23	23	Knowledge transfer	85	80
4	Innovation	96	95	Tacit knowledge	18	18	Innovation	60	58
5	Knowledge creation	55	52	Information	17	17	Knowledge creation	41	40
6	Tacit knowledge	48	46	Learning organizations	17	16	Tacit knowledge	28	27
7	Intellectual capital	47	45	Knowledge workers	17	15	Organizational culture	27	27
8	Knowledge management systems	38	36	Learning	16	15	Communication technologies	23	23
9	Learning	36	34	Knowledge processes	15	15	Intellectual capital	23	22
10	Organizational culture	33	33	Management	15	15	Knowledge management systems	21	20
11	Learning organizations	31	27	Information technology	14	14	Social capital	20	20
12	Organizations	28	28	Organizational learning	14	13	Organizations	19	19
13	Communication technologies	28	27	Competitive advantage	13	13	Learning	19	17
14	Information technology	27	26	Knowledge management systems	12	12	Knowledge organizations	17	17
15	Knowledge processes	26	24	Knowledge creation	11	11	Social networks	16	15
16	Knowledge	24	24	Knowledge transfer	11	10	Organizational performance	14	14
17	Organizational learning	24	22	Knowledge	10	9	Learning organizations	14	13
18	Knowledge workers	22	20	Networks	10	8	China	13	13
19	Knowledge organizations	21	21	Organizations	9	9	Knowledge economy	13	13
20	Organizational performance	21	21	Cities	8	8	Research	13	13
21	Social capital	20	20	Explicit knowledge	8	8	Trust	13	13
22	Social networks	20	18	Case studies	7	7	Modelling	12	12
23	Knowledge economy	19	19	Corporate culture	7	7	Multinational companies	12	12
24	Case studies	18	18	Information systems	7	7	Communities of practice	12	11
25	Competitive advantage	18	18	Knowledge sharing	7	7	Information technology	12	11
26	Information	18	17	Project management	7	7	Critical success factors	11	11
27	Management	17	17	Internet	6	6	Knowledge	11	11
28	Trust	17	16	Knowledge economy	6	6	Knowledge processes	11	11
29	Cities	16	16	Space technology	6	6	Leadership	11	11
30	Modelling	16	16	Strategy	6	6	Spain	11	11
31	Project management	16	16	Creativity	6	5	Organizational learning	10	9
32	Research	16	16	Knowledge-based systems	6	4	Case studies	10	10
33	China	16	15	Communication technologies	5	5	Human resource management	10	10
34	Multinational companies	15	15	Culture change	5	5	India	10	10
35	Communities of practice	15	14	Decision making	5	5	Knowledge-based view	10	10
36	Human resource management	14	14	Intangible assets	5	5	Motivation	9	9
37	Spain	14	14	Intellectual property	5	5	National cultures	9	9
38	Leadership	14	13	Language	5	5	Project management	9	9
39	Information systems	13	13	Organizational culture	5	5	Competences	9	8
40	Motivation	13	13	Organizational development	5	5	Cities	8	8
41	Performance	13	12	Organizational performance	5	5	Collaboration	8	8
42	Collaboration	12	12	Performance measurement	5	5	Communities	8	8
43	Critical success factors	12	12	Process management	5	5	Performance	8	8
44	Explicit knowledge	12	12	Resources	5	5	Small to medium-sized enterprises	8	8
45	India	12	12	Semantics	5	5	Social media	8	7
46	Knowledge-based systems	12	12	Narratives	5	4	Absorptive capacity	7	7

(continued)

Table XII

R	Keyword	Global		1997-2006			2007-2016		
		OC	TLS	Keyword	OC	TLS	Keyword	OC	TLS
47	Small to medium-sized enterprises	12	12	Performance	5	4	Culture	7	7
48	Big data	12	11	Technology	5	4	Knowledge acquisition	7	7
49	Decision making	12	11	Collaboration	4	4	Knowledge mapping	7	7
50	Networks	12	10	Cognition	4	4	Organizational structures	7	7

Notes: Abbreviations available in [Table IV](#), except for; C = occurrences; TLS = total link strength

publishing in the journal. It is also worth noting that the JKM's most cited article, entitled "Motivation and barriers to participation in virtual knowledge-sharing communities of practice", was authored by Ardichvili, Page and Wentling. Finally, although this work highlights the authors of the most cited documents and the most productive authors who of JKM, many other authors from different parts of the world have published in the journal. Therefore, this work is also an acknowledgment to all the researchers who have collaborated in these 20 years of JKM.

To conduct the task of the science mapping analysis, this work uses VOSviewer software. This technique is more advanced than data counting techniques since it allows more sophisticated interpretation. This paper shows the publication structure of authors, universities and countries by using co-citation, bibliographic coupling, citation, co-authorship and co-occurrence of keywords. The results are consistent with performance analysis. In general, this analysis confirms that documents from the USA and the UK are followed and cited by authors from countries, such as Australia, Spain, Italy, among other. This has made them the most influential countries in the JKM literature. It is also worth noting that JKM presents a high level of self-citation, although this practice is normal in most journals. Even so, some explanations for this phenomenon are, for example, the influence exerted by some leads researchers who have published in the journal (Riege, Serenko, Bontis, among others) and the leadership exercised by JKM in the KM field. Another issue, not less important, is to highlight the influence in JKM of some authors such as Nonaka, Takeuchi, von Krogh, Davenport, among others. Many of the works of these authors (Davenport and Prusak, 1998; Nonaka and Takeuchi, 1995; Polanyi, 1966) are considered fundamental for the KM field. Finally, the mapping of science ends with a mapping of the most frequent keywords in JKM and the co-occurrence between them. Although a temporary analysis by decade of the most used keywords in JKM is also presented. This analysis shows that the authors of the JKM publish on various topics related mainly to the general concept of "Knowledge Management". However, from a longitudinal science mapping perspective, this study shows that the authors have recently become interested in new topics, such as Knowledge Sharing, Knowledge Transfer, Innovation, Knowledge creation, among several others.

Finally, as in other studies, this paper has some limitations. First, the data are obtained from the Scopus database, whose limitations are transferred to this study. One of these limitations is, for example, the complete counting system in which papers attributed to multiple authors or affiliations tend to be more important in the analysis compared to those papers that appear with a single author. The science mapping made with the VOSviewer is used to neutralize this limitation since it uses a fractional counting system. The similarity and consistency between the results obtained from the analysis of performance and the science mapping allow us to conclude that there is no significant deviation between the two methods of counting. Still, it would be interesting to use other software, such as Histcite, Pajek or SCiMat, which can deliver information complementary to the data delivered by this paper (Zhou *et al.*, 2018). Third, the breadth of topics and disciplines in JKM has been

evidenced. In this sense, some topics may receive more attention than others regardless of their relevance. Fourth, the different analysis about the authors are made based on their signature. However, over the years, some authors can sign their documents in different ways and may produce important biases in this type of analysis. In practice, we suggest that researchers register on digital platforms, such as ORCID (Open Researcher and Contributor ID). This type of platform provides a unique digital identifier that would solve the aforementioned complications. Fifth, the change of institution of the authors or the double affiliation at the time of publication, could also generate difficulty when analyzing the data. In this study, we have been cautious with these limitations. Finally, while the results give a picture of the current situation, the information presented in this study could change over time. In fact, we have presented evidence that confirms the variation of the topics of interest in the journal's 20 years. Remember that some of the younger documents could include new topics or significantly increase your number of appointments over the years. Therefore, for future research, we recommend a periodic update of this study to improve the understanding of new trends in the JKM.

Note

1. The original definition of the h -index, proposed by Hirsch (2005), was: "A scientist has index h if h of his or her N_p papers have at least h citations each and the other $(N_p - h)$ papers have $\leq h$ citations each."

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