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Strategic revival of HSM

Human systems management: A retrospective of 40 years

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Abstract.
BACKGROUND: For augmentation and sustainability of Human Systems Management (HSM), it is significant to analyse and reposition journals, which is very well done by bibliometric analysis.
OBJECTIVE: The study aims to provide the retrospective of HSM between 1980–2019.
METHOD: Scopus database has been employed to bibliographic indicators for the representation of available data for forty years. By utilising the VOSviewer software, bibliographic materials being drawn from keywords, graphical visuals, bibliographic coupling & co-citation analysis have been done.
RESULTS: Results enabled to establish that the average number of publications remained almost the same throughout forty years, tinting the journal has been as vital in 2019 for researchers as it was in 1980. Citations originated drastic mounting with recently published documents in comparison with earlier production.
CONCLUSIONS: Authors and researchers are suggested to cover knowledge and knowledge management related articles. This study suggests management to ensure the inculcation of more related areas in the scope by announcing special issues to broaden the journals' scope as it remained the main reason for limiting HSM from gaining as much attention as it deserved.

Keywords: Bibliometrics, co-citation, vosviewer, scopus, bibliographic coupling, system, human resources management, humanisation, co-occurrence

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1. Introduction

Human Systems Management (HSM) began in 1980, and since its inception, it seems to have become one of the major journals that promote the humanisation of the work environment. Human Systems Management defines the scope as "enabling of human beings to form creative teams, communities, and societies through autonomy, mastery, and purposefulness, on both a personal and a collegial level, while catalysing people's creative, inventive and innovative potential, as people participate in corporate, business and functional level decisions."

As the journal grows, it is imperative to understand its growth mode and the contribution of different topics or authors to growth. People are increasingly inclined to publish papers in high-impact journals; this is a huge temptation to establish an understanding of innovative methods through which HSM has gradually developed human systems in the management field for the new areas of management. From the interests of publishers and editorial boards, it is interesting to see; how does this affect the progress of HSM? Although scholars usually try to publish papers in major journals, it is also essential to consider the impact, reputation, and prestige associated with specific journals. In the past decade, the humanisation of the work environment has become an important research area, now widely regarded as the most popular industry for research conduction. This stems over time from the high impact factors, meta-analysis, and citation rates of human systems and articles related to management and the impact of antecedents on other management issues.

1.1. Highlights of HSM

HSM began publishing its first issues in 1980. According to Prof. dr. Nada Trunk Širca, editor-in-chief (EIC) since its foundation, this project had started as an idea a few years earlier, in order to promote a European journal specialised in Systems and Management related research conducted worldwide. According to the Editor in Chief "transform human organisations into true societal systems" remained the dominant aspects of the journal since its inception further to this, according to the journal's aims and scope.

> "*Human Systems Management (HSM) is an interdisciplinary, international, refereed journal, offering applicable, scientific insight into reinventing business, civil society, and government organisations through the sustainable development of high-technology processes and structures. Adhering to the highest civic, ethical and moral ideals, the journal promotes the emerging anthropocentric-socio-centric paradigm of societal human systems rather than the pervasively mechanistic and organism or medieval corporatism views of humankind's recent past*." (https://www.iospress.nl/journal/human-systems-management/).

In the first nine issues (1980–1988), the stability in the number of citations was observed afterward; continuous improvement had been seen till the year 1999. From the year 2000, it significantly improved along with improvement in citations around the world. Over time, the number of original scholarly articles in HSM has increased slightly. Starting with seven, eight, and fifteen articles published in the first, second, and third issues, respectively. Since the year 1997, when the popularity of the journal began taking momentum, the number of annual publications has remained stable while citations started an upward trend. This provides an opportunity for researchers to submit research results to HSM and disseminate their results. Currently, HSM offers one volume of two issues per year. Since its origin in 1980, HSM, until the end of 2019, has published a total number

Table 1
HSM Acceptance rate during 2016–2019

	Accepted	Rejected	Total
2019	38	270	308
	12%	88%	100
2018	32	169	201
	15 %	85%	100
2017	62	140	202
	31%	69%	100

of 1042 articles with an average of 26 documents per year. The journal published about forty-six articles in the first year; similarly, it published forty-three documents in 2019, wherein the year 1982, HSM published the highest number of documents as forty-seven. The growth continued stable throughout the period of forty years. In 1983 the journal published the lowest number of documents. During the period 1980–2019, the journal has produced a total 1042 number of documents, which accumulated 6599 citations in total which makes a ratio of 165 citations per paper—pre computerisation and post computerisation periods (1980–1999 & 2000–2019) 569 times growth has been observed.

Currently, the editorial board is made up of 43 experts, with the highest proportion of committee members from Europe. Board also has members from the United States, Canada, and Asia. The number of publications has remained stable over the years, but the number of citations has increased; however, it is still possible to see the high participation of European and American experts on the editorial board. The above content helps define the journal's focus on Europe as a unique symbol, which has been maintained since its inception in 1980.

As given in the Table 1, HSM has further observed more than 60 % of the rejection rate. Table 1 shows the percentage of acceptance and rejection of the documents of the last three years, wherein 2017, 2018 & 2019 rejection percentage was observed as 69%, 85% & 88%. Interestingly, the acceptance rate has been observed on the decline as it was 31%, 15% & 12% in 2017, 2018, 2019, respectively.

It is observed that with the popularisation of general business research, specialised research areas, scientific knowledge has also been reshaped. This has led to a series of studies related to civil society, public and private sector undertakings, which have established new theoretical foundations and incorporated various ways of thinking. Therefore, the emerging field of human systems has developed rapidly because of its novelty, but also because of prominent journals in this field having success stories.

Table 2
Recently Published Bibliometric Analysis

Journal	Interval	Publication
Journal of Business Research	1973–2017	[9]
Journal of Human Resource Management	1985–2005	[10]
Thunderbird International Business Review journal	2005–2019	[11]
Information Systems Management	1984–2019	[12]
International Journal of Computer Integrated Manufacturing	1988–2017	[13]
Journal of Business & Industrial Marketing,	1986–2015	[14]
Journal of Knowledge Management	1997– 2016	[15]
Business Strategy and the Environment	1992–2019	[16]
Sustainable Development	1993–2019	[17]

This research paper aims to bring forth the analysis of the last 40 years' growth of Human Systems Management based on the bibliometric study. Bibliometric is found as a new and emerging field of research in the knowledge areas of library science and information science [1]. It applies quantitative methodologies to study bibliographic materials [2]; therefore, bibliometric materials will go through the quantitative analysis in this research. With the blessing of bibliometric research; the bifurcation, classification, division, segmentation, grouping, and consolidation of the whole body of knowledge has become possible in a much easier way in both horizontal and vertical dimensions simultaneously; by giving a general & holistic overview of a particular area of research, an issue, nation or journal; as well as connections and linkages to other areas of study [3, 4]. It is used to examine, in the plethora of extant literature, to analyse that how much a subject is relevant [5, 6], how influential & effective is an institute of higher education [4], what are the contributions of a journal [7, 8], and how much contribution a nation has made, or value created [3, 6].

Bibliometric analysis has become a norm by journals on important occasions and days like anniversaries. In order to evaluate the performance of journals, Table 2 gives recently conducted bibliometric studies. Bibliometric research is of great use in analysing journals' inclinations & tendencies, facilitating in looking into journals' patterns and trends of publications as well as providing valuable

information of publications' quality by analysing its citations.

The daily updated prestigious Scopus database, being the largest warehouse of bibliographic references, research paper abstracts, and the scientific literature, is employed for the analysis. This database of Scopus is peer-reviewed and has an impressive collection of titles that numbers 22000 plus, and the number of publishers accumulates to more than 5,000, allowing multidisciplinary linkages and integration on a global level. The study explores the productivity, importance, influence, and specialty and presents it as the most prolific authors, institutes, and countries.

This study addresses a number of queries like, "What was the structure of publications and citations of HSM since its formation? In comparison with all the publications, which research topic gained the most citations? Among all the HSM publications, which are the most cited documents? In the journey of 40-years, which are the authors, universities, and geographical locations (countries) with more contributions? For the contribution to the journals, which authors, universities, and countries are doing joint and collaborative research?

The study will provide vital information for the researchers, academicians, editorial teams, and even readers by answering these questions. e.g., it will convey vital information regarding the scope and aim of HSM since its inception. It may also help researchers and academicians prepare future research by converting data into information related to the most cited publications and areas, which are the research gaps to be tapped in the future. Other than this, it will assist the journal's editorial board in deciding new policies for the journal or modifying the present policies by focusing on those types that have more impact. This paper is in the following order; section one is having an introduction, section two elaborates on the adopted methodology, section three is comprised of the derived results having details of the citation structures, section four is enlisting the graphical visuals drawn by VOSviewer software, and lastly, this paper enlists the details of findings and conclusion in section five.

2. Methods

The bibliometric data used in the current study are accessed and selected from the Scopus database. Scopus database is one of the largest peer-reviewed research repositories in the Social Sciences. The repository is also accessed and acknowledged for empirical and quantitative research [9]. The search results showed 1042 publications in HSM during the period 1980 to 2019.

This work uses the descriptive technique as well as VOSviewer software to analyse and map the bibliographic material [18]. The VOSviewer takes the bibliographic data as an input and transforms it as an output in graphs.

In this study, several bibliometric techniques are used, which include the bibliometric coupling, co-citation, and co-occurrence of author keywords. Bibliometric Coupling (BC) occurs when two different documents from two different sources cite a third document. Co-citation [19] appears when "two articles receive a citation by the same third document" (Study A and B receive a citation from study C). Co-occurrence of keywords analyses the keywords that appear most often in the documents. The following prominent bibliographic studies [9] this study uses bibliometric coupling for authors and institutions and co-citation for documents and journals. The co-occurrence of keywords is used to classify keywords into general topics.

3. Results

3.1. Publication and citation structure of HSM

Between 1980 and 2019, a total of 1042 documents were discovered. In the first year of its establishment, HSM published 46 articles. In 40th years (i.e.2019), the magazine published 43 articles. Figure 1 shows the number of annual publications of HSM from 1980 to 2019. During its 40 years of publication, the journal published a total of 1042 documents, an average

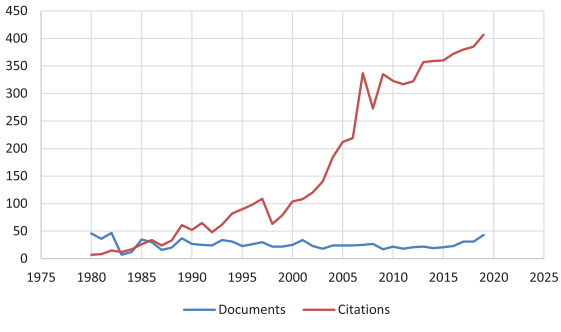

Fig. 1. Publication and Citation trend of HSM from 1980–2019.

of 26 documents per year. The results in Fig. 1 clearly show that the per-year publication rate of the journal remained almost consistent. In 1982, the HSM published the highest number of documents (47), while in the year 1983, HSM published the lowest number of documents. In the year 2019, HSM got the highest number of citations (408) from 43 papers.

For a clear understanding of the citation received by HSM, Table 3 presents the data for the annual citation structure. Results show that 2019 has been the most productive year with 43 documents and a total citation of 408. The sum of total citations from 1980 to 2019 remained 6599 generated by a total of 1042 published documents.

Computerisation has revolutionised every aspect of life, especially society, business, and economy, where academics and research have no distinction. Computerisation has increased both point and remote access to available resources and materials for everyone through paid and free modes of access. Therefore it is very common to expect that the number of publications and the number of citations should depict a reasonable difference in pre and post computerisation eras. In this connection, Table 3 provides the details of total documents and citations that appeared before and after computerisation. As for as a total number of published documents in Human Systems Management are concerned, not significant differences are noted even number of documents is found decreased, which is opposite than expectations computerisation has decreased approximately 12% of the number of documents. One possible reason can be advocated as computerisation has given access to the authors for searching new documents precisely and fastly. It has also equipped the evaluators and rejection rate might have increased caused in the reduction of the total number of published documents. On the other hand, as was expected, a huge number of changes in total citations are observed. According to the details summarised in Table 4, almost 569% increment has been observed after the inculcation of computerisation in research and publishing with specific reference to HSM.

Table 3
Total No. of documents and citations year-wise since 1980 to 2019

Year	No. of Documents	No. of Citations
2019	43	407
2018	31	385
2017	31	380
2016	23	372
2015	21	360
2014	19	359
2013	22	357
2012	21	322
2011	18	317
2010	22	323
2009	17	335
2008	27	273
2007	25	337
2006	24	219
2005	24	212
2004	24	184
2003	18	140
2002	23	120
2001	34	108
2000	25	104
1999	22	79
1998	22	63
1997	30	109
1996	26	98
1995	23	90
1994	31	82
1993	34	62
1992	24	48
1991	25	65
1990	27	52
1989	37	61
1988	20	33
1987	16	24
1986	30	34
1985	35	26
1984	12	17
1983	7	12
1982	47	15
1981	36	8
1980	46	7
Total	**1042**	**6599**

3.2. *Leading authors, universities, and countries of HSM*

Several authors have contributed to the progress of HSM. In this section, we explore ten of the most prolific authors in terms of the number of publications they contributed to HSM. Table 5 presents the list of top ten authors with their total number of publications, total citations to these publications, and the most cited paper out of these publications. Zeleny, M. ranks number one on the chart with 61 documents, followed by Singer, A.E,

Table 4
Pre and Post computerisation Analysis

Pre computerisation			Post computerisation		
Year	Documents	Citations	Year	Documents	Citations
1999	22	79	2019	43	407
1998	22	63	2018	31	385
1997	30	109	2017	31	380
1996	26	98	2016	23	372
1995	23	90	2015	21	360
1994	31	82	2014	19	359
1993	34	62	2013	22	357
1992	24	48	2012	21	322
1991	25	65	2011	18	317
1990	27	52	2010	22	323
1989	37	61	2009	17	335
1988	20	33	2008	27	273
1987	16	24	2007	25	337
1986	30	34	2006	24	219
1985	35	26	2005	24	212
1984	12	17	2004	24	184
1983	7	12	2003	18	140
1982	47	15	2002	23	120
1981	36	8	2001	34	108
1980	46	7	2000	25	104
Total	**550**	**985**	**Total**	**492**	**5614**
Total Documents				**1042**	
Total Citation				**6599**	

with 18 documents. One very interesting finding over here is related to the author (Lin, B.) having the lowest number of documents (11) but the highest percentage (%) of citations (184).

Furthermore, we also analysed the most productive institute. Note that an institution refers to the authors that work there at the time of publishing in HSM. Additionally, from 1980 and 2019, Table 6 presents a list of the ten most productive institutions, and Table 5 summarised the results of the ten most productive countries.

In the category of institutional performance, Fordham University from the United States of America is found to be at the top position in HSM, where its 77 documents are published while the second position is grabbed by the University of Michigan from the United States of America by publishing 25 documents. The rest of the top four universities/institutes were; Tel Aviv University, Beijing University of Posts and Telecommunications, Harbin Institute of Technology, the University of Cambridge with 23, 21, 20 & 15 numbers of published documents, respectively. Further to this, the Beijing Institute of Technology, and Singapore Management University, were found to have an equal number of published documents.

Another interesting issue is analysing the results at the country level to see which country is publishing more in HSM worldwide. In order to do so, Table 7 presents the ten most productive countries in HSM. Again, the ranking is based on the number of papers and, in the case of a tie, according to the number of citations. Most of the HSM's publications come from authors working in the United States of America (469 published documents), followed by China with 86 published documents. Australia is found at the end of the list with 29 published documents.

3.3. The most cited documents of HSM

Next, let us look into the most cited documents of all-time of HSM. The aim is to identify those studies that have more influence and impact in the scientific community. Table 8 presents a list of all the articles which received 0 or more citations since 1980. The most influential document is of Yadong Luo (Luo Y.- Chinese author) published in the year 1997. This author mostly wrote about Chinese Management and international strategy, and this specific article also explained the concept of "Guanxi" means personal relationships. He explained that business behaviour revolved around "Guanxi' It received 259 citations since its publication. Article by Zeleny M. (1987) took second place in the most cited document with a count of 162 citations. Followed by an article from Murray, Pipino Van Gigch (1985), with 156 citations.

3.4. Most citations to HSM by authors

Another important aspect to examine the reputation and influence of the journal is to identify who cites HSM. To do this, the analysis goes to the citation report of Scopus and selects the results available in the "cited by" option. Note that the work analyses the citing documents published in HSM between 1980 and 2019. Table 9 reports the results of the authors with the largest number of articles citing HSM publications. Baruch, Y. cites most frequently HSM articles (35), while Singer, A.E. cited HSM's 34 documents.

A further interesting aspect is to identify which journal frequently cites HSM publications. Table 10 shows the results of most citing journals and most citing countries. We have selected the top ten those journals. Self-citation of HSM is ranked 1st in the most citation given by any journals with 330

Table 5
The most productive authors of HSM

Rank	Name	TD	Affiliation	TC	Most cited publication	TC the most cited publication
1.	Zeleny, M.	61	Fordham University, Department of Management Systems, New York, United States	663	Management support systems: Towards integrated knowledge management	162
2.	Singer, A.E.	18	The University of Canterbury, Department of Management, Christchurch, New Zealand	71	Strategy as Rationality	17
3.	Warner, M.	15	Cambridge Judge Business School, Cambridge, United Kingdom	73	Managing China's Human Resources	15
4.	Georgantzas, N.C.	15	Fordham University, Gabelli School of Business, New York, United States	67	Designing high-leverage strategies and tactics	11
5.	Maruyama, M.	15	Aomori Graduate School, Aomori, Japan	62	Lessons from Japanese Management Failures in Foreign Countries	13
6.	Kochen, M.	14	University of Michigan, Ann Arbor, Research Institute, Ann Arbor, United States	7	Self-service aspects of health maintenance: Assessment of current trends	3
7.	Ronen, B.	13	The University of Haifa, Department of Psychology, Haifa, Israel	69	Relevance lost: The rise and fall of activity-based costing	17
8.	Mackenzie, K.D.	12	University of Kansas School of Business, Lawrence, United States	53	The inherent structure and dynamic of intelligent human organisations	13
9.	Lin, B.	11	Louisiana State University in Shreveport, Shreveport, United States	184	E-commerce user behavior model: An empirical study	85
10.	Liang, T.Y.	11	Singapore Management University, Lee Kong Chian School of Business, Singapore City, Singapore	57	The process approach to organisational design	14

TD: Total Documents; TC: total citation.

Table 6
The most productive institutes with total produced documents

Rank	University/Institute name	TD	TC
1.	Fordham University	77	827
2.	University of Michigan	25	68
3.	Tel Aviv University	23	114
4.	Beijing University of Posts and Telecommunications	21	59
5.	Harbin Institute of Technology	20	31
6.	University of Cambridge	15	71
7.	University of Kansas School of Business	14	58
8.	Beijing Institute of Technology	14	38
9.	The University of Canterbury	13	100
10.	Singapore Management University	13	87

Table 7
The most productive countries with total produced documents

Country Name	Total Documents
United States of America	469
China	86
United Kingdom	72
Taiwan	57
Japan	40
Canada	39
Israel	39
Italy	34
France	33
Australia	29

documents. Journal of Business Ethics ranked 2nd with documents citing HSM publications. From the country's point of view, the United States is the country giving more citations to HSM with 1608 documents citing HSM, followed by the United Kingdom and China with 687 and 439 documents, respectively.

Table 8
The most cited documents of HSM from 1980 to 2019

No	Authors	Title	Year	TC
1	Luo Y.	Guanxi: Principles, philosophies, and implications	1997	259
2	Zeleny M.	Management support systems: Towards integrated knowledge management	1987	162
3	Murray T.J., Pipino L.L., Van Gigch J.P.	A pilot study of fuzzy set modification of delphi	1985	156
4	Rastogi P.N.	Knowledge management and intellectual capital - The new virtuous reality of competitiveness	2000	139
5	Baruch Y.	The rise and fall of Organizational Commitment	1998	107
6	Schneider S.C.	Information overload: Causes and consequences	1987	93
7	Zeleny M.	Human systems management: Integrating knowledge, management and systems	2005	87
8	Jiang J.J., Hsu M.K., Klein G., Lin B.	E-commerce user behavior model: An empirical study	2000	85
9	Turban E., Gehrke D.	Determinants of e-commerce Website: Website design: Experts vs. consumers	2000	78
10	Zeleny M.	Multiple criteria decision making: Eight concepts of optimality	1998	76
11	Corò G., Grandinetti R.	Evolutionary patterns of Italian industrial districts	1999	75
12	Checkland P.B.	Soft Systems Methodology	1989	72
13	Bond M.H., Hofstede G.	The Cash Value of Confucian Values	1989	69
14	Zeleny M.	High technology management	1986	62
15	Liao L.-F.	A learning organisation perspective on knowledge-sharing behavior and firm innovation	2006	51
16	Dooley K.J., Johnson T.L., Bush D.H.	TQM, Chaos and Complexity	1995	49
17	Lau T., Wong Y.H., Chan K.F., Law M.	Information technology and the work environment - Does IT change the way people interact at work?	2001	46
18	Zeleny M.	Knowledge as a new form of capital Part 1. Division and reintegration of knowledge	1989	46
19	Sen F., Shiel M.	From business process outsourcing (BPO) to knowledge process outsourcing (KPO): Some issues	2006	45
20	Rastogi P.N.	Sustaining enterprise competitiveness - Is human capital the answer?	2000	44
21	Huang A.H., Yen D.C.	Usefulness of instant messaging among young users: Social vs. work perspective	2003	41
22	Biggiero L.	Markets, hierarchies, networks, districts: A cybernetic approach	1999	41
23	Paniccia I.	The performance of IDs. Some insights from the Italian case	1999	41
24	Yager R.R.	An introduction to applications of possibility theory	1982	40
25	Rastogi P.N.	Knowledge management and intellectual capital as a paradigm of value creation	2002	38
26	Hofstede G., Hofstede G.	Multilevel Research of Human Systems: Flowers, Bouquets and Gardens	1995	37
27	Louis M.R.	A cultural perspective on organisations: The need for and consequences of viewing organisations as culture-bearing milieux	1981	37
28	Baruch Y.	Business Globalisation – The Human Resource Management Aspect	1995	36
29	Bardhan A.D.	Managing globalisation of R&D: Organising for offshoring innovation	2006	35
30	Corò G., Grandinetti R.	Industrial district responses to the network economy: Vertical integration versus pluralist global exploration	2001	35
31	Zhang X., Prybutok V., Huang A.	An empirical study of factors affecting e-service satisfaction	2006	34
32	Ng P.T.	The learning organisation and the innovative organisation	2004	33

Table 8
Continued

No	Authors	Title	Year	TC
33	Castka P., Balzarova M.A.	Social responsibility standardisation: Guidance or reinforcement through certification?	2008	32
34	Chen K., Tarn J.M., Han B.T.	Internet dependency: Its impact on online behavioral patterns in E-commerce	2004	32
35	Biggiero L.	Self-organising processes in building entrepreneurial networks: A theoretical and empirical investigation	2001	32
36	Kendall K.E., Buffington J.R., Kendall J.E.	The relationship of organisational subcultures to DSS user satisfaction	1987	32
37	Mathews J.	Holonic organisational architectures	1996	31
38	Burrell G.	The absent centre: The neglect of philosophy in anglo-american management theory	1989	31
39	Wang S., Wang H.	Shared services beyond sourcing the back offices: Organisational design	2007	30
40	Eshet-Alkalai Y., Geri N.	Does the medium affect the message? the influence of text representation format on critical thinking	2007	30

Table 9
Most citations to HSM by authors

Ranke	Author	TC to HSM
1	Baruch, Y.	35
2	Singer, A.E.	34
3	Zeleny, M.	34
4	Molina-Morales, F.X.	25
5	Georgantzas, N.C.	24
6	Grandinetti, R.	23
7	Dubois, D.	18
8	Gottschalk, P.	18
9	Turnbull, S.	18
10	Maruyama, M.	17

Technological Forecasting and Social Change cited the lowest form top ten with 26 cited documents the same way India is found at the lowest with 170 citations.

4. Intellectual networking of HSM

The results of the previous section provide rankings based on specific criteria. However, another interesting question is to analyse how the bibliographic data is connected between each other in order to identify similar profiles between the different variables. This section, particularly, gives a graphical view of co-citation techniques, bibliographic coupling, and keywords' co-occurrence.

Co-citation of journals occurs when two documents of two different journals receive a citation from the same third document of another journal [13]. The co-citations of journals in HSM are shown in Fig. 2; each circle represents a journal. This map shows the most-cited journals, and the connection shows the co-citation link among the journals. Academy of Management Review, Academy of management journal, Journal of Applied Psychology, Decision Support Systems, Information and Management, and Journal of Operations Management are the most cited journals in HSM. This implies that the above-mentioned journals are publishing most of the HRM-related papers and scope of these journals are centered towards the human-related issues in management. Figure 2 shows three significant clusters where it provides a view of the most prominent journals from the red, green, and blue clusters, while the yellow cluster seems the smallest part in a holistic view.

Another important subject to consider is the bibliographic coupling of institutions published in HSM Bibliographic coupling is defined as "a measure that considers the number of times two different studies reference a third common work in their bibliographies" [21] Applying this concept, Fig. 3 shows the bibliographic links of major universities publishing in HSM. This method allows us to identify bibliographic references common to different institutions while viewing their relevance in the field. Fordham University, University of California, Estonian Business School, Esten Illinois University, Organizational

Table 10
The results of most citing journals and countries

Rank	Source Title	TC to HSM	Country	TC to HSM
1	Human Systems Management	330	United States	1608
2	Journal of Business Ethics	47	United Kingdom	687
3	International Journal of Human Resource Management	42	China	439
4	Lecture Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics	36	Australia	380
5	International Journal of Production Research	33	Italy	310
6	Information and Management	32	Taiwan	260
7	International Journal of Production Economics	28	Canada	214
8	International Journal of Information Management	27	Spain	209
9	International Journal of Operations and Production Management	27	Germany	195
10	Technological Forecasting and Social Change	26	India	170

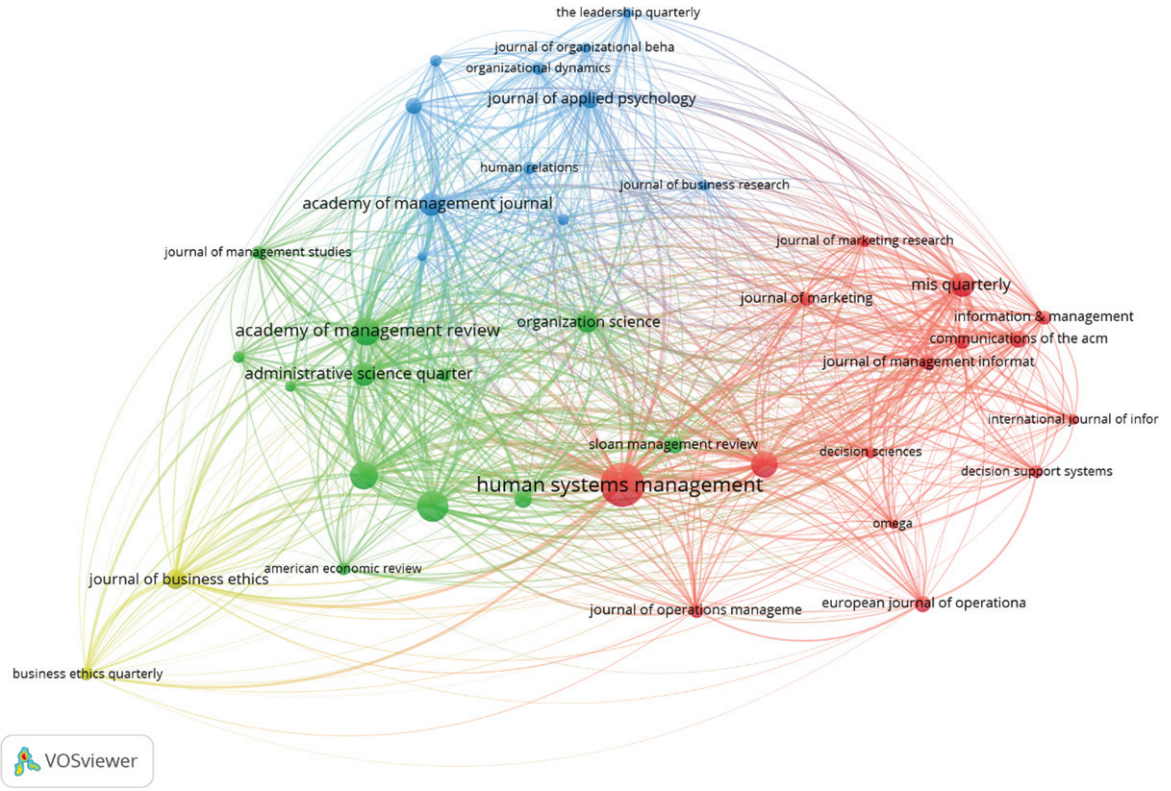

Fig. 2. Co-citation of journals in HSM.

System Inc, and McKinsey & Company, Inc. were fond of the highest bibliometric coupling.

5. Future research directions

In order to explain the characteristics of publications in HSM, in this part of the study, the authors' co-occurrence keywords were carefully designed using VOSviewer software, as shown in Fig. 4 and Table 11. It is to be highlighted here that the keywords analysed here are the keywords used by the authors in the article title, abstract, and keywords. Matching refers to how often a keyword appears with other keywords in the same journal. Keeping in view the keywords, knowledge, and Knowledge Management

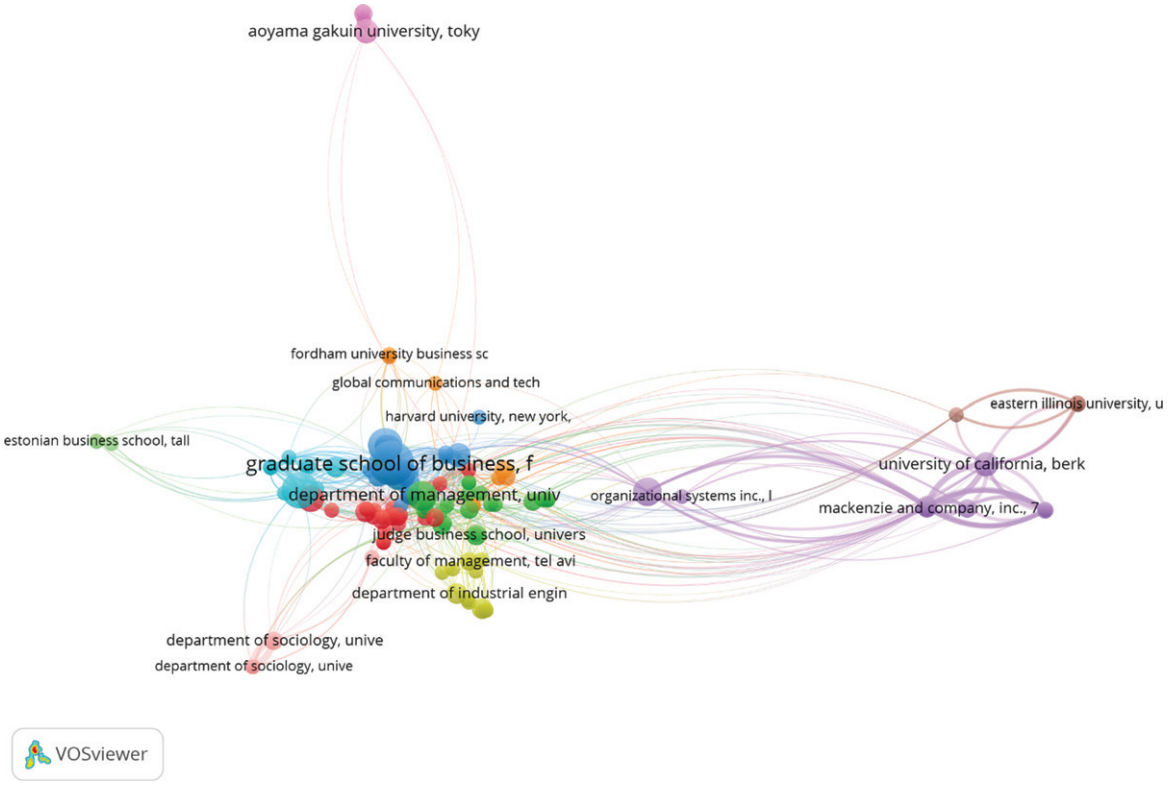

Fig. 3. Bibliographic coupling of institutions publishing in HSM.

is the main area for the future researcher to focus on publishing in Human Systems Management. Further, as we found that quantitative analysis has been implied in most of the articles, future researchers can adopt a different approach, which may be qualitative, which can provide support for more acceptance from the Human Systems Management.

The previous section analysed the development trajectory of the journal from the most cited articles and authors. This section will provide a more in-depth understanding of the journal in the form of keywords and predict the topics that will become trendy in the future. In this way, this study can help current researchers find subject areas that have not yet been discovered in the literature or need more research. Counting and analysing keywords by the period selected by the authors of the article is a very useful tool that can be used to find documents and determine trends in the research field. In this study, it is used to determine the trend of the subject under study. Figure 4 shows a variety of words, although terms related to "knowledge" are displayed more frequently. This result can be explained by the scientific field, including publications.

More and more practical terms appear in the journal. This can be reflected by the keywords "knowledge management" and "system." This is interesting and shows that more practical research with real-world potential has become increasingly popular in the journal. This is an interesting trend because, in the past, the subject areas of many articles were based on geography or themes, but the study of "technology" and "information" reflected a shift in more research that influenced thinking. Management of Human is still a positive keyword, indicating that research focusing on variables related to knowledge and systems are still popular, and this trend may continue in the future. Therefore, future researchers should maintain awareness that their research may have an administrative impact on policies, policymakers, and business incubators. Further to this study also found that organisational systems and technologies are becoming increasingly important research topics as an important field of journal research. Therefore, this trend may continue in the future, but new relevant subject areas may become more important.

An information-based management system has become a research field and has become one of

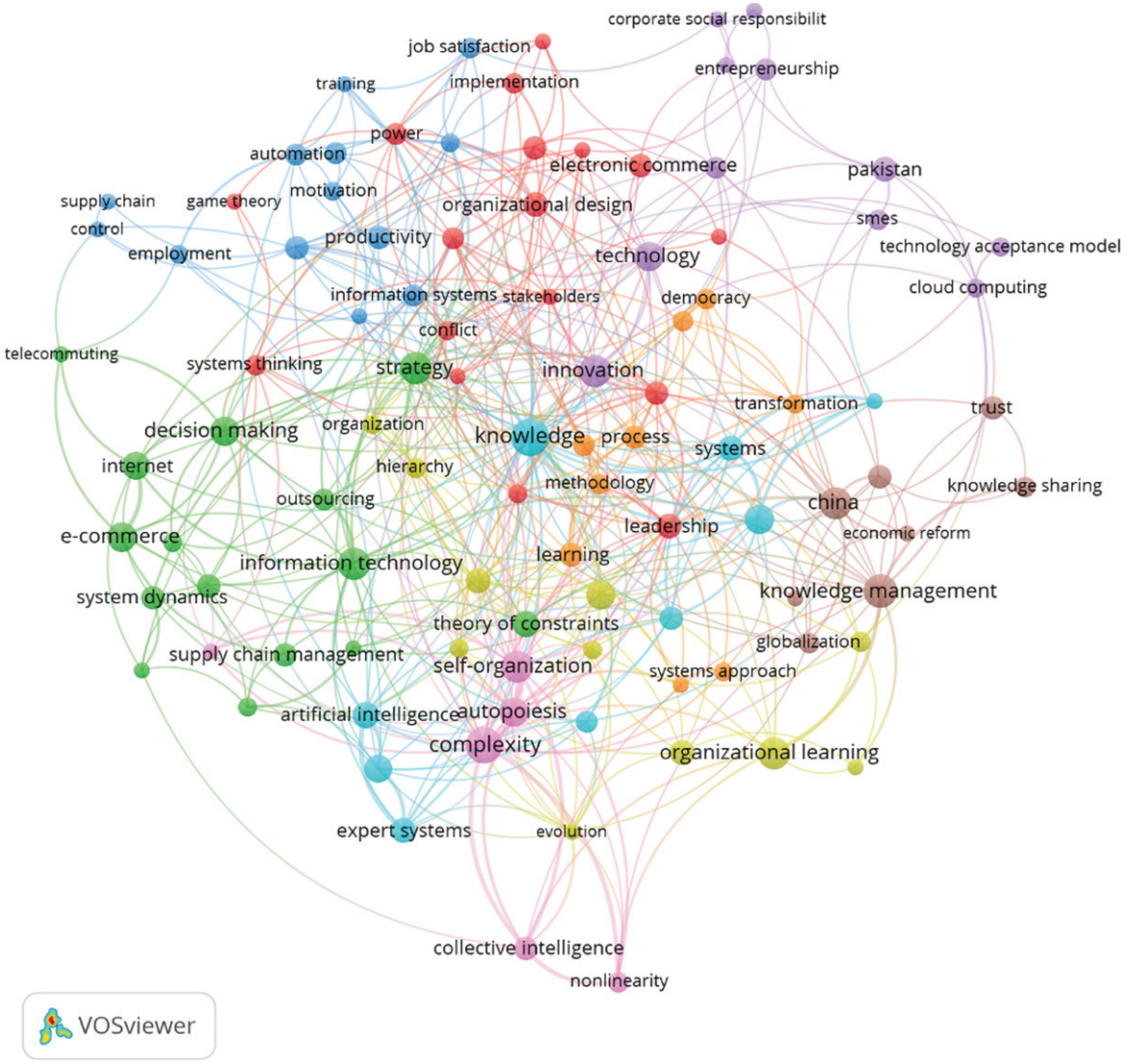

Fig. 4. Co-occurrence of authors' keywords between 1980–2019.

the most common keywords in journals. Therefore, for future researchers, a good topic is to focus on emerging research areas, such as "system development and system evaluation." This reflects the increasing emphasis on interdisciplinary research. As more research funds are allocated to increase research across multiple subject areas, research in these areas will become increasingly important. Here it is notable that the journal showed any geography-related keywords like "Pakistan" and "China," which shows its global level reach. However, we expect there will be more emphasis on developing countries in the future. As the economic growth rate in these regions expands, there will be more interest in Systems and technology. Similarly, as more researchers are required to publish papers in journals with high impact factors, Southeast Asia is likely to become a keyword in many journal articles in the future.

Further to this, future researchers are advised to include more journals with the same scope for their upcoming studies, which would enhance the scope of the study and enable them to make a comprehensive analysis and draw better results. Here future researchers can also make a comparative study in the future and highlight the advantages and disadvantages of publishing in Human Systems Management. Here, future researchers can also ensure the more

Table 11
Co-occurrence of authors keywords between 1980–2019

Rank	keyword	occurrences	total link strength
1	Knowledge	25	53
2	Complexity	23	40
3	Knowledge Management	20	27
4	China	18	21
5	Innovation	18	25
6	Information Technology	17	25
7	Organizational Learning	17	18
8	Self-Organisation	17	31
9	Strategy	17	34
10	Autopoiesis	15	35
11	Management	15	24
12	Decision Making	14	22
13	E-Commerce	14	14
14	Human Resource Management	14	12
15	Technology	14	24
16	Decision Support Systems	13	19
17	Internet	13	17
18	Artificial Intelligence	12	22
19	Theory of Constraints	12	5
20	Competitive Advantage	11	7

detailed analysis and comprehensive descriptive analysis related to the field of knowledge management not based on one journal but can be on specific geographical boundaries. Further research on HSM is also can be a future direction for the researchers as this study is done within a specific time frame.

Main Trends: Keywords that authors have used in HSM repeatedly provides a unique set of reusable business terms. Matching keywords in the title and abstract show trends and areas covered in certified knowledge published by HSM. Table 11 and Fig. 4 give a summary of the simultaneous occurrence of these words. The simultaneous occurrence also indicates which type of research is holding popularity in HSM. It also shows researchers the future direction, that is, if they are interested in publishing in HSM, they should conduct studies on highlighted areas and follow dominating trends. This will also help future research in discovering future research projects. Keyword redundancy also helps to find documents in any particular field to find relevant literature for future research references. These repeated words highlight various research theories, models, and industries, as well as the level of firms' tiers.

A close inspection of Fig. 4 and Table 7 reveals that most of the HSM research was conducted in China, United States, United Kingdom, Taiwan, and Japan. The main research still remains concentrated on the humanisation of the working environment in the United States, Central Asia, and Europe in comparison to those countries that are not on the list; researchers in this high frequency depicting countries seem focused on human-related work issues. It can also be estimated that " innovation" and "knowledge management" have been the main areas of research in the field of human resources management for the last 40 years. These topics are currently as popular as these were 40 years back. Furthermore, "complexity" and "organisational learning" have also been the main areas of concern for researchers.

From a theoretical point of view, most studies in HSM publications use "constraint theory". Since "management" remains the organisational level of research, prospective researchers who are interested in publishing documents in HSM in the future may focus on business aspects, especially those related to employees at the "management" level. The geographic area repeatedly mentioned in the published document (as mentioned earlier) is the largest area in the world, and the trend of the ever-changing economy is increasing. It shows that future researchers should not only focus on these economies, but the knowledge management aspects of these economies be included in their future research.

6. Implications

The academic journals provide the base for the advancement and evolution of knowledge of the community of academicians as well as industries as there is a mushroom growth in the number of journals in every field, the area of Systems Management has also witnessed a phenomenal increase in publishing journals, which has put the researchers in a fix as to which journal they may prefer to publish their research works and report findings. The analysis of subject-wise categories of published articles in HSM the researchers can very well measure and decide whether research best fits this journal particularly. The research community would enormously get benefitted by easily understanding the focus and trend patterns of HSM as this article has identified them the topics and keywords that are most common.

The theoretical approach adopted in most of the studies in Human Systems Management has been observed related to knowledge management; even

most of the arguments were structured around the keywords knowledge and knowledge management. Further to this, most of the studies are observed with the quantitative approach of data collection and analysis has been done through a statistical procedure for social sciences. For the management of the journal, it can also be safely advised to enhance the scope of the journal as most of the article it published has been moving around few keywords, as discussed in the earlier part. This can be done in the future by announcing special issues related to the new, different topics.

7. Discussion

Bibliometrics is an analytical tool that can be used for purposes such as the identification and characterisation of scientific activities or to understand the main research trends in specific fields or journals. Therefore, the bibliometric study of a single publication within a given period of time provides valuable information for understanding the development and characteristics of its scientific production. This article describes the research published by HSM (1980–2019) based on the data compiled by Scopus and the journal website. The purpose of this study is to understand the level of productivity (number of articles) and the impact of the main authors, institutions, or countries involved in publications in HSM through literature measurement indicators. Therefore, it meets the needs of in-depth research and analyses its scientific production. From the first volume issued by HSM in 1980 to 2019, the journal published a total of 1042 documents in total.

According to the results, the number of documents published each year has shown a very little fluctuation over the years, reaching 43 documents by 2019, which is almost the same as the number of documents published initially in 1980 (i.e.46), which has undoubtedly caused a significant stagnation in the journal's influence and popularity. This really showed that the research areas covered by HSM are as significant today as was forty years back. In the document, the number of citations received by articles published in HSM has drastically increased over time. Of the 1065 articles published in HSM, 6,599 were cited and included by Scopus, 21 of which were cited more than 100 times. In the past 20 years (that is, 1997–2019), the journal has received more than half of the citations, which makes it top in the Cite Score ranking in this category.

Regarding authors, institutions, and countries, the document indicates that Zeleny, M. and Singer, A.E are included in the large producer group. They published 79 documents, proved them true advocators, and consider HSM high-quality journal for such unique topics in management. In the analysis of institutions, it can be seen easily that the most productive universities in HSM. Fordham University has the largest number of publications, followed by the University of Michigan. The two universities published a total of 102 articles, which enables this study to conclude that the institutes/universities in the United States of America (more specifically in New York and Michigan) really consider HSM as the tone of the journals that encourage and publish "knowledge" based articles. In HSM, there are many countries, and detailed analysis shows that the United States and China are the two main contributors, contributing a total of 555 documents. The reason can be very much evident as the United States of America has been accepted as the most influential country around the world, while China remained the economic hub in the economy. Writers from both Giants consider HSM as one of the prominent journals for "knowledge Management" related to unique and updated topics. Another interesting aspect is the journals that publish articles citing HSM. Most of the documents come from the journal itself, but also from the School of Management, Journal of the "Academy of Management Review, Academy of Management Journal, Journal of Applied Psychology, Decision Support Systems, Information and Management and Journal of Operations Management." These are the journals that seem to be the recipient of the same nature of the topics as HSM, which means these journals also encourage prefer unique and practicality oriented research areas.

8. Limitations

Like any other research paper, this document has some limitations that should be considered. For example, the citation data obtained from the Scopus database has been transferred to our research. For example, one of these limitations is related to the affiliation of authors because it may change over time, which means that several articles by the same author may have different affiliations. Instead, the results show the characteristics of today's HSM, which may be expected to change over time. Therefore, it is recommended to update to understand new trends.

These trends and occurrence of the results are based on a number of publications based on a specific time period and cannot be portrayed out of the time zone. The intellectual basis, which is developed under this study are under the scope of Human Systems Management. The finding cannot be applied to other journals depicting the same scope. This study shows the structure and trends of the specific authors who are repeatedly working and publishing their work in Human Systems Management only. Co-citations, co-authorships, and other findings cannot be applied and referred to other researchers with the same interest but not in Human Systems Management. the literary variety that has been observed is in a reasonable time frame, and at the same time, this study focused on only one journal, which limits the scope of the study. One of the primary concerns about the study is related to the intention of the authors who cited work for a number of purposes, e.g., developing a framework, criticising the earlier work, to have the citation of the same journal as a strategy to get acceptance and materialising publishing opportunities. These intentions of the authors are not taken into consideration.

Despite these limitations, although some of them are attempted to be addressed while most of them are unavoidable, the literature quantitative analysis method can still determine the most important trends in HSM, which should be useful to future authors and the general public of journals.

9. Conclusion

To conclude, HSM has proved itself a journal of great respect and earned a high position within the last 40 years in research areas of knowledge management and systems development. The results of this analysis may provide implications for both practitioners and academicians. For example, we suggested some future research directions; these directions could become a starting point of communication between practitioners and academicians. HSM gained its academic excellence by publishing on topics that are "classics" in their particular disciplines. The journal has witnessed a great surge in its publications and citations, which designates it to be a vital and worthy research outlet, imparting knowledge in many research domains. Our high tributes to all the contributors to this journal, including authors as well as reviewers and editors, for their priceless scholarly contributions and efforts to bringing HSM to the position it enjoys today.

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PREPARATION OF THE MANUSCRIPT: Imran Ahmed Shahzad
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