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Over a Half-Century of *Management Decision*: A Bibliometric Overview

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Abstract

Management Decision (MD) was first published on January 1st of 1967, making it the oldest and longest-running scholarly publication focused specifically on the area of management studies. The purpose of this article is to investigate the publication trends across the Journal's history and its evolution through bibliometric analyses. In particular, we used the Scopus database to evaluate performance of MD and provide a visual map of MD based on the bibliographic data collected. We also identified the most common keywords used in the journal to identify the streams of research covered so far in MD. The results show a consistent increase in publications and citations, demonstrating MD's growing stature as a leading academic outlet specific to advancing knowledge in the area of management studies. Insights from this article can be useful to past, current and future contributors and readers of MD to understand where the research in the journal came from and where it could be going.

Keywords: Management Decision; Bibliometric; Review; VOSViewer; Bibliometrix.

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Over a half-century of *Management Decision*: A bibliometric analysis

> *"A leading business science journal with the distinction of being the oldest and longest-running scholarly publication focused specifically on the area of management."* (https://www.emeraldgrouppublishing.com/md.htm)

1. Introduction

As the above quote from the *Management Decision* (MD) website explains, MD has a unique place in history as the oldest scholarly journal that focuses specifically on management studies. Since 1967, the year of its inception, the journal has grown significantly and is placed among the top outlets for management scholarship. The journal is indexed in both Scopus and the core collection of the Web of Sciences, with a 2020 impact factor of 4.957 and a Cite score of 5.50**.** The journal has recently launched a new section called "Over a Half-Century of Management Decision" (Randolph-Seng, 2022). The purpose of this new section will be to highlight all of the research presented within a specific topic (leadership, strategy, entrepreneurship, marketing, operations etc.) in MD over all relevant issues (Randolph-Seng, 2022). To start this new section and call for papers that go in the outlined purpose, we provide a bibliometric overview of Management Decision since its first volume published in 1967.

We present this bibliometric study of MD following a major change in the editorial team, with the appointment of a new editor-in-chief, Brandon Randolph-Seng, who followed from Patrick Murphy, and several new associate editors and editorial board members. It is common for a journal to organize a special study that takes stock of its contribution when celebrating an anniversary or a change in its editorial team (Marzi, Caputo, Garces, Dabic, & Dabić, 2020). Moreover, considering that it has been more than 60 years since MD's first issue, a comprehensive study that briefly summarizes the knowledge produced over this period of time is both desirable and justified to support future contributors in joining the conversations happening in MD. Indeed, while we are benefiting from an increase in generating scholary knowledge, we are also facing the challneges of having a high volume of contributions which may put scholars in difficulty to remain up-to-date for all relevant studies published in their respective fields. Overall, our aim is to provide a comprehensive overview of the intellectual strucure of MD, delving into vital information which

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regards the scope, aims and gaps within the journal, that in turn will assist management scholars in advancing theory and research.

We use the Scopus database for our investigation and follow the general logic of a bibliometric analysis. Scopus has more than 18,000 titles from 5,000 publishers, including abstracts and bibliographic references. The database contains one of the largest and most up-to-date listings of abstracts and bibliographic references of peer-reviewed, science-based literature. Bibliometric methods originated from the fields of library and information science (Bar-Ilan, 2008; Broadus, 1987), and have been useful in classifying and analysing various topics; for example, to study trends and relationships in a given area of study (Dabić et al., 2020), to depict a map of knowledge following pivotal studies (Caputo, Pizzi, Pellegrini, & Dabić, 2021), or to evaluate a specific journal's contribution to the literature (Marzi et al., 2020). In particular, journals are increasingly publishing bibliometric analysis to evaluate journal performance and contributions (Ayoko, Caputo, & Mendy, 2022; Donthu, Kumar, & Pattnaik, 2020; Marzi et al., 2020).

This paper is structured as follows. We first present the methodology used for the analysis of contributions published by MD from 1967 to 2021. Then, we present our analysis results using activitiy indicators to elaborate on the productivity of the journal. Finally, we provide the bibliometric analysis of MD, including the results across themes of interest for MD and tracing possible future research avenues for the journal.

2. Methodolohgy

To draw a comprehensive, yet succinct, overview of the contributions published in MD, a bibliometric analysis has been choosen as the methodological approach which aimed at articulating detailed analytical information related to the journal. Through applying a comparative bibliometric approach, which compared several analyses to develop a coherent picture (Caputo et al., 2021), we analyzed the performance of the MD in terms of its productivity as well as influence on developoing scholary knowledge. Bibliometrics are the subset of scientometrics that adopts statistical methods to the study of scientific activity in a scientific community (Caputo et al., 2021).

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For the purpose of our research, we followed the perspective known as positive bibliometrics (Todeschini & Baccini, 2016), which delves into describing and explaining phenomena in science via the analysis of its scientific conversations. In doing so, bibliometric indicators have been used to represent the phenomena or proxies of phenomena. For example, the citations received by an article that expresses a concept are considered to be a proxy of the diffusion, and impact, of said concept in the scientific community. Specifically, we analyzed the information about the number of publications, citations and related h-index scores in order to better realize the progressive patterns of activity within the journal. Examples of positive bibliometrics also include bibliographic coupling, co-citation analysis, and keywords analysis.. A step by step process was followed.

First, preliminary searches on the Web of Sciences (WoS) and Scopus databases were conducted using a query including the ISSN number of MD to identify all the papers published by MD available in the datasets. Web of Science retrieved 1,899 documents with gaps in the coverage as the database is missing papers published between 1967 and 1975, and between 1980 and 2007. Scopus instead coveres the entire publication period from 1967 until 2021, and retrieved 4,008 documents, including Articles, Reviews and Editorials. All documents were categorized as both "Business, Management and Accounting" and "Decision Sciences" subject areas. To ensure that the analyses were run on the most complete dataset, the results from thes Scopus database were chosen. In terms of publication stage, at the time of the query, 3,987 articles were Final (published with volume and issue number) and 21 In Press (published online without volume and issue number).

Second, to map the bibliographic material from Scopus, we used the R package Bibliometrix (Aria & Cuccurullo, 2017) and the VOSviewer software (Van Eck & Waltman, 2010). The VOSviewer software is widely adopted in bibliometric studies in management research because of its high efficiency and reliability in constructing networks of scientific publications, researchers, organizations, scientific journals, themes, keywords, and institutions (Donthu et al., 2020). The software allows items within these networks to be linked through bibliographic coupling, citations, and co-citations link. VOSviewer heeds special attention to the graphical representation of the

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bibliometric maps. One of the biggest advantages of this software is that it is convenient and functional for depicting large bibliometric maps in a way that is easy to interpret (Van Eck & Waltman, 2010).

Third, we used the bibliometric techniques of bibliographic coupling, co-citation and co-occurrence of keywords/topics. Bibliographic coupling arises when two articles cite one or more of the same references (Kessler, 1963), while co-citation (Small, 1973) is the frequency to which two articles are cited together in other articles. It shows how the two articles are intellectually related and share the number of common references (Gazni & Didegah, 2016). Bibliographic coupling can assist in research themes detection as it holds the view that two authors with more common references are more associated and have similar research interests (Sassetti, Marzi, Cavaliere, & Ciappei, 2018). Bibliographic coupling is an effective and efficient way for science mapping research and information retrieval. Moreover, connection based on the shared references could serve as a better predictor of social ties between authors (Zhao & Strotmann, 2008).

Finally, we have analyzed the co-occurrence of keywords/topics when they are shared by more than one article, it looks at the common presence, frequency of occurrence, and close proximity of them exhibited in research. The underlying assumption is that the most occurring topics of a study correctly depicts the concept of the study. Co-occurrence of the keywrods/topics is mostly used for the thematic structure analysis (Callon, Courtial, Turner, & Bauin, 1983), as the co-occurrence of the keywords underscores the thematic convergence of scientific conversations (Börner, Chen, & Boyack, 2003). The study of such contents enables the scholars and researchers to devise a conceptual layout of the broader field. Using R package Bibliometrix (Aria & Cuccurullo, 2017) enabled us to formulate the conceptual thematic map in order to appraise the thematic diversity covered in MD manuscripts across various time period.

3. Results

3.1. *The evolution of the publications and citation structure*

The scientific contributions from MD have been steadily increasing over the years since 1967. To this growth of published contributions also corresponded a steady growth of citation metrics, which allowed the journal to be positioned as a key outlet in the field of management studies. Figure 1

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presents the evolution of publications of MD over the last half a century. In the first year of publication (1967), MD published 56 documents. From 1968 to 1990, there has been an uneven trend in the number of publications. However, from 1990 to date, MD has seen an increasing trend in the number of publications. This increase in the number of publications could be attributed to the increased interest of the scholars in the management discipline and the overall growth in scientific publications in the last few years.

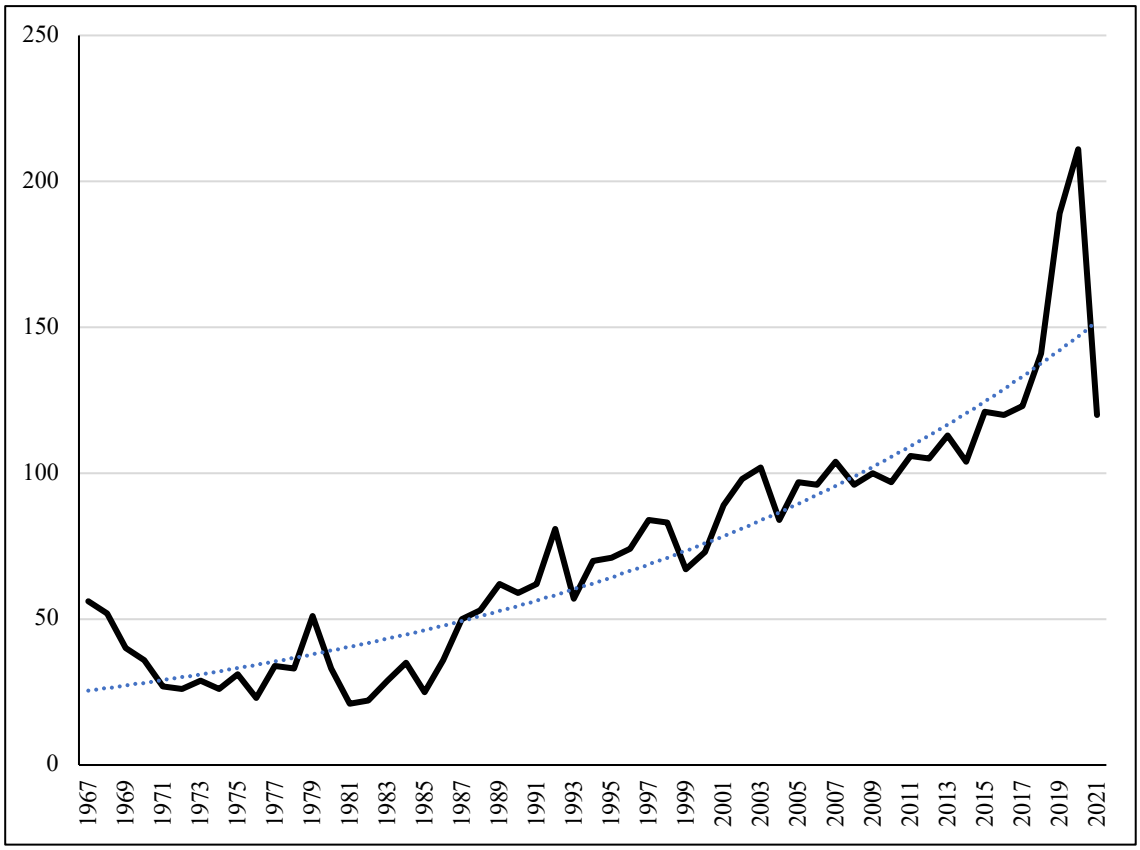

Figure 1. Publication trend of MD from 1967-2021

Next, to comprehend the journal's influence, we created the journal's citation structure. Table 1 shows that the number of citations for MD is growing, with MD receiving a total of 75,894 citations (on the date of data retrieval). This demonstrates that MD's influence grows year after year, indicating the journal's popularity in management research. The rising number of citations to MD might be attributed to the high quality of MD's publications. The growing number of citations to MD is due to the novelty of the publications as well as the attractiveness of the MD's study themes. The more current and pressing the issue, the more likely it is to attract citations.

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In terms of the percentage of cited papers, Figure 2 depicts that from 1995 to 2021, more than 90% of MD's publications have been cited; this fact also shows the growth in popularity of the MD's publications. An additional source of evidence for the journal's evolution is the SCImago Journal Rank, an indicator that is a measure of the scientific influence of scholarly journals that accounts for both the number of citations received by a journal and the importance or prestige of the journals where the citations come from. At the time of writing of this article the journal has an H-index of 98 and has been stably included in Q1 (top quartile) for the field of Business, Accounting and Management (miscellaneous) since 2012. The SCImago, based on Scopus data from 1999, also shows a growing percentage of published articles that are the result of international collaborations, confirming the international nature of the journal.

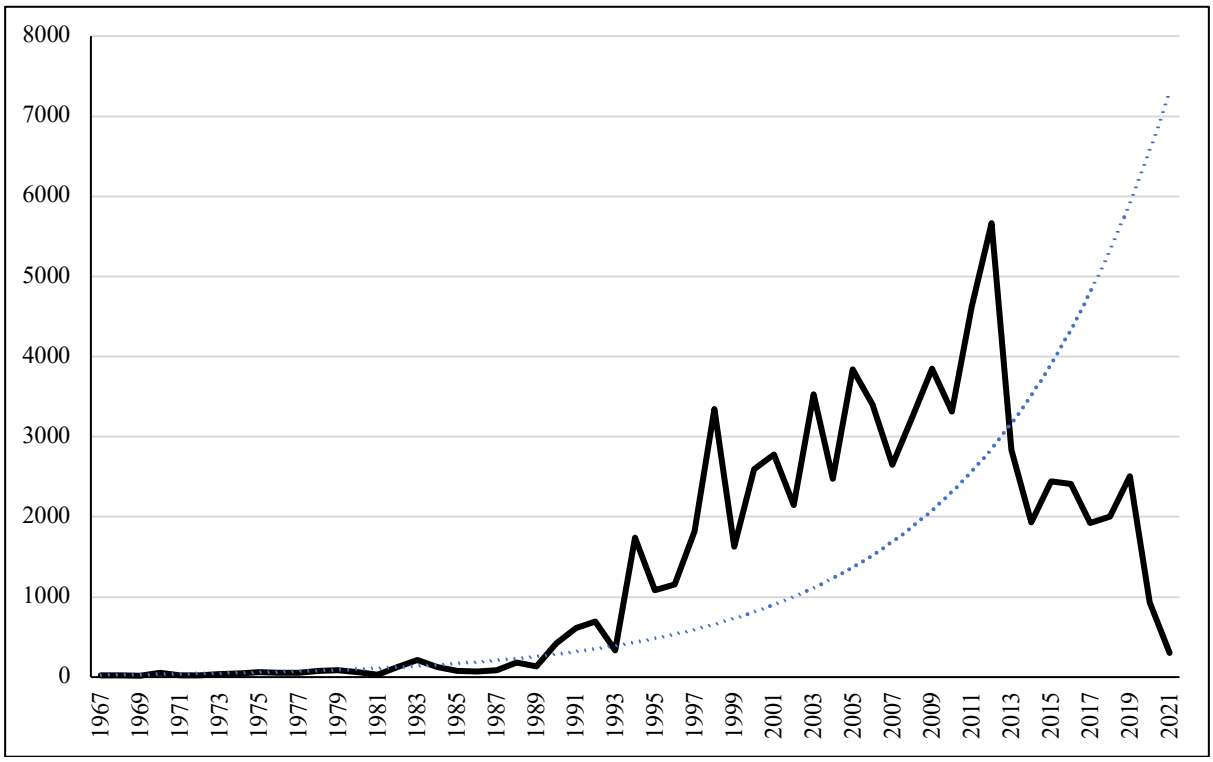

Figure 2. Total citations in Scopus by year (1967 to 2021)

3.2. Most prolific authors and productive institutions in MD

This section presents a summary of the most productive authors, their citations count and their h-index in regard with their publications in the MD. This ranking is based on the number of publications by authors in the journal. Table 1 includes only those authors who have contributed more than 10 documents to MD. Gabor A. from University of Nottingham is the most productive

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author with 22 publications. Their publication predominantly focused on price awareness and sensitivity,the pricing of products and consumer behavior (e.g., Gabor & Granger, 1979). Whereas in terms of impact, Bontis N., of DeGroote School of Business, Hamilton, Canada is among the most influential authors of MD with 2491 citations to 13 publications. Bontis publications mainly focus on intellectual capital, as a pioneer of such studies (e.g., Bontis, 1998). Bontis explored the development of several conceptual measures and models regarding intellectual capital.

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Table 1. The most prolific authors in MD

R.	Author name	Affiliation	Country	Management Decision					
				f_i	LA	SA	C	C/fi	h-index
1	Gabor A.	University of Nottingham	United Kingdom	22	20	10	26	1.18	3
2	Goch D.	-	United Kingdom	19	19	19	0	0.00	0
3	Walle A.H.	Jishou University	China	16	16	15	61	3.81	3
4	Groth J.C.	Texas A&M University	United States	15	10	4	95	6.33	5
5	Chaharbaghi K.	University of East London	United Kingdom	14	9	0	368	26.29	8
6	Wu Y.-C.J.	National Taipei University of Education	Taiwan	13	4	2	489	37.62	11
7	Bontis N.	DeGroote School of Business	Canada	13	5	1	2491	191.62	10
8	Appelbaum S.H.	John Molson School of Business	Canada	11	11	1	605	55.00	10
9	Ghobadian A.	Henley Business School	United Kingdom	11	5	0	372	33.82	7
10	Wills G.	University of Bradford School of Management	United Kingdom	11	9	8	15	1.36	2
11	Vinten, G.	Southampton Business School	United Kingdom	10	10	10	130	13.00	8
12	Walters, D.	The University of Sydney	Australia	10	10	3	300	30.00	9
13	Wright, P.C.	Colorado State University	United States	10	8	2	149	14.90	7

Note: LA = Lead Author; SA = Single Author. R= Rank, f_i = frequency, C = Citations.

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Table 2 presents the results of the most productive institutes and/or universities in terms of the total number of articles published in MD between 1967 to 2021.

Table 2. The most productive institutions in MD

R.	Institution/universities	Country	Management Decision			
			$\sum f_i$	C	C/$\sum$fi	h-index
1	Universitat de València	Spain	52	1097	20.10	18
2	Cranfield School of Management	United Kingdom	35	1024	29.26	14
3	The University of Manchester	United Kingdom	32	692	21.63	14
4	Manchester Metropolitan University	United Kingdom	32	1111	34.72	8
5	Alliance Manchester Business School	United Kingdom	31	854	27.55	14
6	University of Strathclyde	United Kingdom	30	842	28.07	14
7	University of Bradford School of Management	United Kingdom	28	234	8.36	11
8	Cranfield University	United Kingdom	27	860	31.85	14
9	Cardiff Business School	United Kingdom	25	259	10.36	9
10	Universitat Politècnica de València	Spain	24	463	19.29	12
11	Macquarie University	Australia	24	484	20.17	13
12	Texas A&M University	United States	24	237	9.88	8
13	Hanken School of Economics	Finland	22	2279	103.59	13
14	University of Bradford	United Kingdom	21	351	16.71	10
15	National Taiwan University of Science and Technology	Taiwan	21	1376	65.52	15
16	Concordia University	Canada	20	1273	63.65	15
17	National Kaohsiung University of Science and Technology	Taiwan	20	452	22.60	11
18	University of Surrey	United Kingdom	19	640	33.68	10
19	McMaster University	Canada	19	1279	67.32	14
20	Universidad de Sevilla	Spain	19	474	24.95	13

Note: R= Rank, f_i = frequency, C = Citations

Table 3 shows the most productive Countries in MD, where it can be noted the predominance of articles coming from authors working in the United Kingdom and the United States.

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Table 3. Ranking of the most productive countries in MD

R.	Country	Management Decision			
		$\sum f_i$	C	$C/\sum f_i$	h-index
1	United Kingdom	965	19104	19.80	67
2	United States	849	17102	20.14	63
3	Spain	222	5702	25.68	39
4	China	216	3866	17.90	34
5	Australia	212	4668	22.02	35
6	Italy	193	3180	16.48	31
7	Canada	169	5844	34.58	31
8	Taiwan	169	5345	31.63	40
9	France	105	1958	18.65	24
10	India	89	2254	25.33	26
11	South Korea	70	1446	20.66	21
12	Finland	66	3567	54.05	24
13	Germany	58	1673	28.84	23
14	Netherlands	50	1631	32.62	20
15	United Arab Emirates	48	1262	26.29	18
16	Brazil	47	871	18.53	17
17	Hong Kong	47	1169	24.87	17
18	Sweden	46	1477	32.11	20
19	Portugal	39	1218	31.23	16
20	Greece	33	869	26.33	18

Note: R= Rank, f_i = frequency, C = Citations

3.3. The most cited articles pubihsed in MD

The question of what citation count represents has been an important question for a long time. The Cole brothers, the pioneers in citation studies, in their book on social stratification in science, referred to citation count as the measure of the quality of the papers (Cole & Cole, 1974). Even today, in the latest literature on bibliometric studies, citation count is regarded as an indicator of significance and impact of research. It is believed that studies with novelty and high originality will be highly cited. Aksnes et al. (2019) argued that citation count might directly relate to the scientific value and significance of the research. Thus, the number of citations can be regarded as the measure of an article's usefulness and impact in the field.

Table 4 presents the top ten most cited documents of MD since 1967. The paper by Bontis, (1998) tops the list of most cited articles of MD with 1479 citations. This study presents an empirical pilot research that looked at the development of numerous conceptual measurements and models for intellectual capital and its influence on business performance. In addition, Grönroos's

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contribution has been recognized as one of the most cited docuemnts on MD with over a 1000 citaions. In his article, he contributed to the paradims shift from mix marketing to relatioships marketing. A Study by Baregheh et al., published in 2009, with an average of 60.17 citations per year, is next on the list. The authors of this study conducted content analysis of existing definitions of "innovation" in order to propose an integrative definition of organizational "innovation". In 2012, Sashi contributed to the leading outlets for management research with his study on customer engament. His study has already been cited more than 500 times. In particular, he delved into the buyer-seller relationships, and focused on the role of social media in increasing customer satisfaction.

From table 4 we can see that there are 35 articles that received 200 or more citations, which indicate the impact and significance of MD as leading outlet for management research especially in the area of green purchase intentions and green management (Y. Chen & Chang, 2012; Molina-Azorín, Claver-Cortés, López-Gamero, & Tarí, 2009), value creation through innovation (Lee, Olson, & Trimi, 2012), social entrepreneurship (Thompson, Alvy, & Lees, 2000), quality management (Bhuiyan & Baghel, 2005), Customer value (Khalifa, 2004) to name a few.

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Table 4. Ranking of the top cited articles in MD from 1967 to 2021

R.	Title	Author/s	Year	Age	C_S	Cs/Year
1	Intellectual capital: an exploratory study that develops measures and models	Bontis N.	1998	23	1479	64.30
2	From Marketing Mix to Relationship Marketing: Towards a Paradigm Shift in Marketing	Grönroos C.	1994	27	1065	39.44
3	Towards a multidisciplinary definition of innovation	Baregheh A., Rowley J., Sambrook S.	2009	12	722	60.17
4	Customer engagement, buyer-seller relationships, and social media	Sashi C.M.	2012	9	635	70.56
5	Enhance green purchase intentions: The roles of green perceived value, green perceived risk, and green trust	Chen Y.-S., Chang C.-H.	2012	9	452	50.22
6	Co-innovation: Convergenomics, collaboration, and co-creation for organizational values	Lee S.M., Olson D.L., Trimi S.	2012	9	381	42.33
7	Social entrepreneurship – a new look at the people and the potential	Thompson J., Alvy G., Lees A.	2000	21	367	17.48
8	An overview of continuous improvement: From the past to the present	Bhuiyan N., Baghel A.	2005	16	356	22.25
9	The analytic hierarchy process and analytic network process: An overview of applications	Sipahi S., Timor M.	2010	11	343	31.18
10	Customer value: A review of recent literature and an integrative configuration	Salem Khalifa A.	2004	17	329	19.35
11	Green management and financial performance: A literature review	Molina-Azorín J.F., Claver-Cortés E., López-Gamero M.D., Tarí J.J.	2009	12	310	25.83
12	Strategic alliances and models of collaboration	Todeva E., Knoke D.	2005	16	308	19.25
13	Intellectual capital and business performance in the pharmaceutical sector of Jordan	Sharabati A.-A.A., Jawad S.N., Bontis N.	2010	11	297	27
14	Perceptions of senior managers toward knowledge-sharing behaviour	Lin H.-F., Lee G.-G.	2004	17	290	17.06
15	Innovation or imitation? The role of organizational culture	Naranjo-Valencia J.C., Jiménez-Jiménez D., Sanz-Valle R.	2011	10	282	28.20
16	Organizing successful new service development: a literature review	Jong J.P.J., Vermeulen P.A.M.	2003	18	278	15.44
17	Relationship marketing: Strategic and tactical implications	Grönroos C.	1996	25	271	10.84

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18	Business model dynamics and innovation: (re)establishing the missing linkages	Cavalcante S., Kesting P., Ulhøi J.	2011	10	268	26.80
19	Impact of organizational learning and knowledge management factors on e-business adoption	Lin H.-F., Lee G.-G.	2005	16	268	16.75
20	The role of communication and management support in a lean manufacturing implementation	Worley J.M., Doolen T.L.	2006	15	259	17.27
21	Brands and brand equity: definition and management	Wood L.	2000	21	255	12.14
22	Visualising and mapping stakeholder influence	Bourne L., Walker D.H.T.	2005	16	249	15.56
23	Re-examining green purchase behaviour and the green consumer profile: New evidences	Akehurst G., Afonso C., Gonçalves H.M.	2012	9	248	27.56
24	Customer orientation and performance: A study of SMEs	Appiah-Adu K., Singh S.	1998	23	241	10.48
25	Organizational support for intrapreneurship and its interaction with human capital to enhance innovative performance	Alpkan L., Bulut C., Gunday G., Ulusoy G., Kilic K.	2010	11	239	21.73
26	The Marketing Strategy Continuum: Towards a Marketing Concept for the 1990s	Grönroos C.	1991	30	237	7.90
27	Resistance to change: a literature review and empirical study	Pardo Del Val M., Martínez Fuentes C.	2003	18	234	13.00
28	A multidimensional approach to the adoption of innovation	Cooper J.R.	1998	23	231	10.04
29	Knowledge sharing, intellectual capital and firm performance	Wang Z., Wang N., Liang H.	2014	7	226	32.29
30	Why and how to adopt green management into business organizations?: The case study of Korean SMEs in manufacturing industry	Lee K.-H.	2009	12	221	18.42
31	Impact of color on marketing	Singh S.	2006	15	221	14.73
32	Employee-driven innovation: Extending the license to foster innovation	Kesting P., Ulhøi J.P.	2010	11	216	19.64
33	Keynote paper From marketing mix to relationship marketing - towards a paradigm shift in marketing	Grönroos C.	1997	24	216	15.43
34	Understanding the influence of corporate social responsibility on corporate identity, image, and firm performance	Arendt S., Brettel M.	2010	11	209	19.00
35	Transformational leadership and employee creativity: Mediating role of creative self-efficacy and moderating role of knowledge sharing	Mittal S., Dhar R.L.	2015	6	208	34.67

Note: Age = Age in years; C_S = Citations according to Scopus; Cs/Year = Citaion per year

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3.4. Citation details of most citing journals in MD

Lucio-Arias and Leydesdorff, (2008) regarded citation as a link between documents that are cognitively significant. The information on the citation relationships between publications provides a comprehensive perspective by illustrating how documents are connected to one another. A set of citation data includes not just static and fragmented information like citation frequency, but also dynamic information on the growth and evolution of relationship structures between publications. As a result, citation network analysis can be a useful tool for revealing the underlying structure of interrelationships. Citation analysis or citation tracking is a useful measure of analyzing the importance of a publication. An essential aspect of the journal's credibility and reputation is to see what are the journals that cite its publications, in this section we did a citation tracking of MD to comprehend that who cites MD publication. Table 6 shows the results of the top ten citing journals. Table 5 shows that 1,535 documents of MD have cited its own publication. This phenomenon is known as self-citation. The latest SCImago data for the MD covers the information until 2020 and it shows 188 self citations and 2,348 external citations (citations from journals different than MD), this year recorded the highest ratio of external citations, after years of growth and divergence of the two metrics, that confirm the establishment and reputation of MD in the field as a leading journal.

The results in table 6 show that MD has received citations from the top journals in the business and management field, which shows the repute of MD.

Table 5. The results of most citing journals

R.	Source Title	Citations to MD	Research Area

1	Management Decision	1535	• Business, Management and Accounting
			  ○ Business, Management and Accounting (miscellaneous)
			• Decision Sciences
			  ○ Management Science and Operations Research

2	Sustainability	1081	• Energy
			  ○ Energy Engineering and Power Technology
			  ○ Renewable Energy, Sustainability and the Environment
			• Environmental Science
			  ○ Environmental Science (miscellaneous)

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			○ Management, Monitoring, Policy and Law • Social Sciences ○ Geography, Planning and Development
3	Journal of Business Research	654	• Business, Management and Accounting ○ Marketing
4	Journal of Cleaner Production	583	• Business, Management and Accounting ○ Strategy and Management • Energy ○ Renewable Energy, Sustainability and the Environment • Engineering ○ Industrial and Manufacturing Engineering • Environmental Science ○ Environmental Science (miscellaneous)
5	Journal of Business Ethics	452	• Arts and Humanities ○ Arts and Humanities (miscellaneous) • Business, Management and Accounting ○ Business and International Management ○ Business, Management and Accounting (miscellaneous) • Economics, Econometrics and Finance ○ Economics and Econometrics • Social Sciences ○ Law
6	Journal of Intellectual Capital	432	• Business, Management and Accounting ○ Business, Management and Accounting (miscellaneous) • Social Sciences ○ Education
7	Industrial Marketing Management	389	• Business, Management and Accounting ○ Marketing
8	Journal of Knowledge Management	327	• Business, Management and Accounting ○ Management of Technology and Innovation ○ Strategy and Management
9	Journal of Business and Industrial Marketing	256	• Business, Management and Accounting ○ Business and International Management ○ Marketing
10	International Journal of Productivity and Performance Management	253	• Business, Management and Accounting ○ Business, Management and Accounting (miscellaneous) ○ Strategy and Management

4. Bibliometric analysis results

The previous section provided performance indicators of MD. In this section, we describe the visualization analysis of the bibliographic data. For this purpose, we firstly provided the analyses which have been done by using VOSviewer software (Van Eck & Waltman, 2010) in order to create visualizations of co-citation of journals, bibliographic coupling for most impactful countries.

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4.1. Co-citation analysis of journals citing MD

Specifically, the co-citations of journals in MD are shown in Figure 3. In doing so, we selected the criteria of VOSviewer to be set at 100 relations as the threshold values of citation relationships. The co-citation occurrence is grouped into different clusters represented in different colours. The circle's size depicts the number of citations it received in MD, the bigger the size, the more the citations. The figure shows that the highest co-citation link of MD is with the *Strategic Management Journal*. MD also has a high co-citation link with the *Academy of Management Journal*, *Journal of Business Research* and *Harvard Business Review*. Furthermore, MD also has a strong co-citation link with itself.

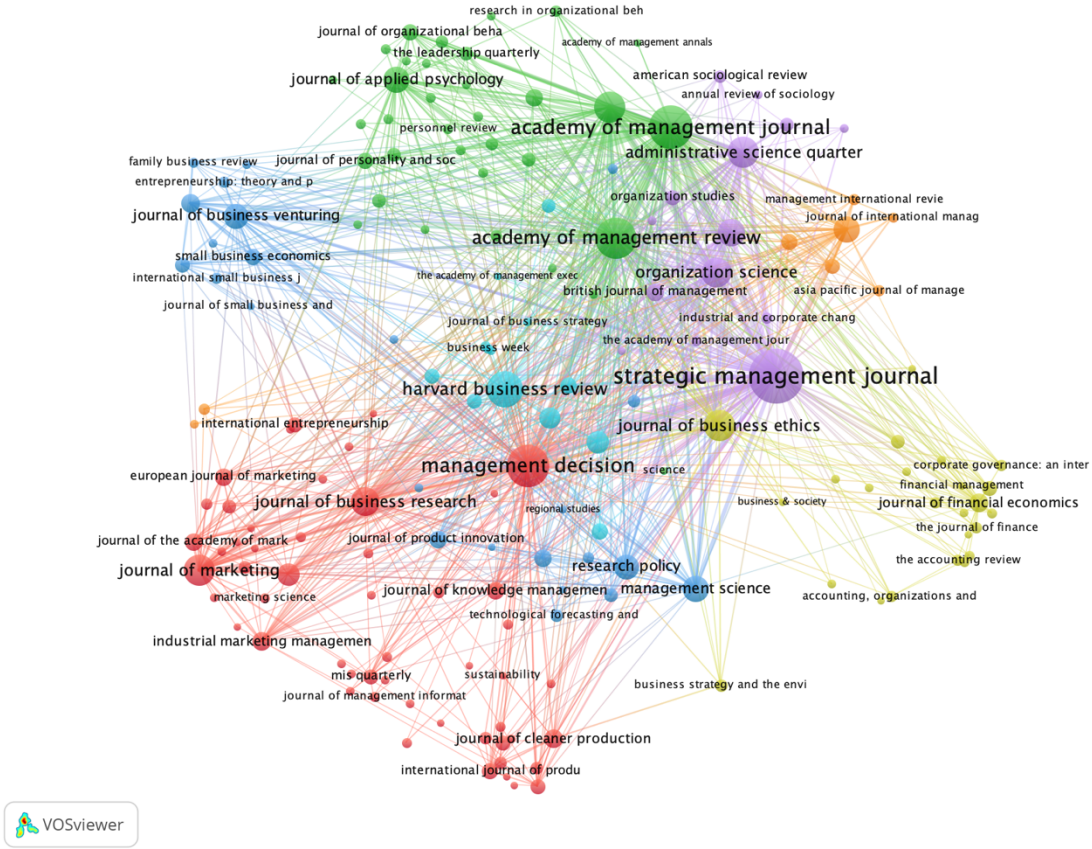

Figure 3. Co-citaion analysis of journals citing MD

4.2. Bibliographic coupling of countries

The result of bibliographic coupling of countries visualizes the countries that use similar literature in their publications (see Figure 4). One of the major contribution of the bibliographic coupling is

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that it provides deeper insights into the scientific activity. It assumes that how much two documents are similar determined in terms of number of shared literature references (Kessler, 1963). Further it also brings out how researchers and scholars construct links among the existing literature. Results indicate that the US and the UK are the nuclei of MD, with strong connections to other countries.

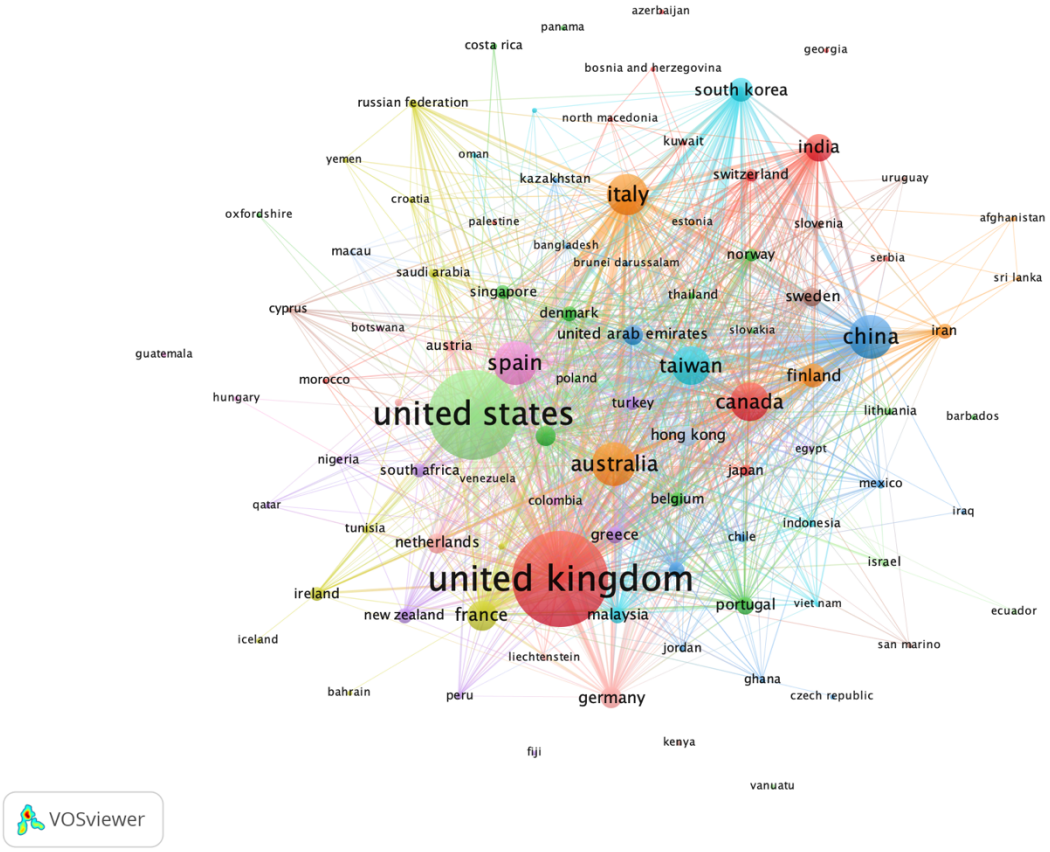

Figure 4. Bibliographic coupling of countries publishing in MD

The network in Figure 4 shows the countries that cite each other and depicts connection among authors' affiliated countries. Here citations represent the sum of citation that country A cites to country B and vice versa. The results show that the US and the UK have an intense network of citations with other countries. Further, UK has also strong connection with India and Brazil. Similarly, China and Australia has strong co-citation links with each other.

4.3. Conceptual thematic of MD

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Needless to say that, since its inception, MD has made a significant contribution to a diverse range of topics in management. It is imperative to examine how the different topics and themes have evolved during the last five decades. The exploration of this topic may help in revealing new directions and opportunities for future research. In particular, we have provided the conceptual thematic map, the topic trends, and the temporal development of most impactful topics on the MD using R package Bibliometrix (Aria & Cuccurullo, 2017).

In so doing, we plotted the most relevant topics represending them on a two-dimentional map which visualizes their conceptual thematics since the journal's inception. Figure 5 provides a map in which the information about the strength of topics' density which refers to their internal relationships as well as their external associations that is indicated as their centrality. In particular, this map includes four quadrants: high density and centrality (Motor Themes), low density and high centrality (Niche Themes), high density and low centrality (Basic Themes), and topics that have low density and centrality (Emerging or Declining Themes) (López-Fernández et al., 2016).

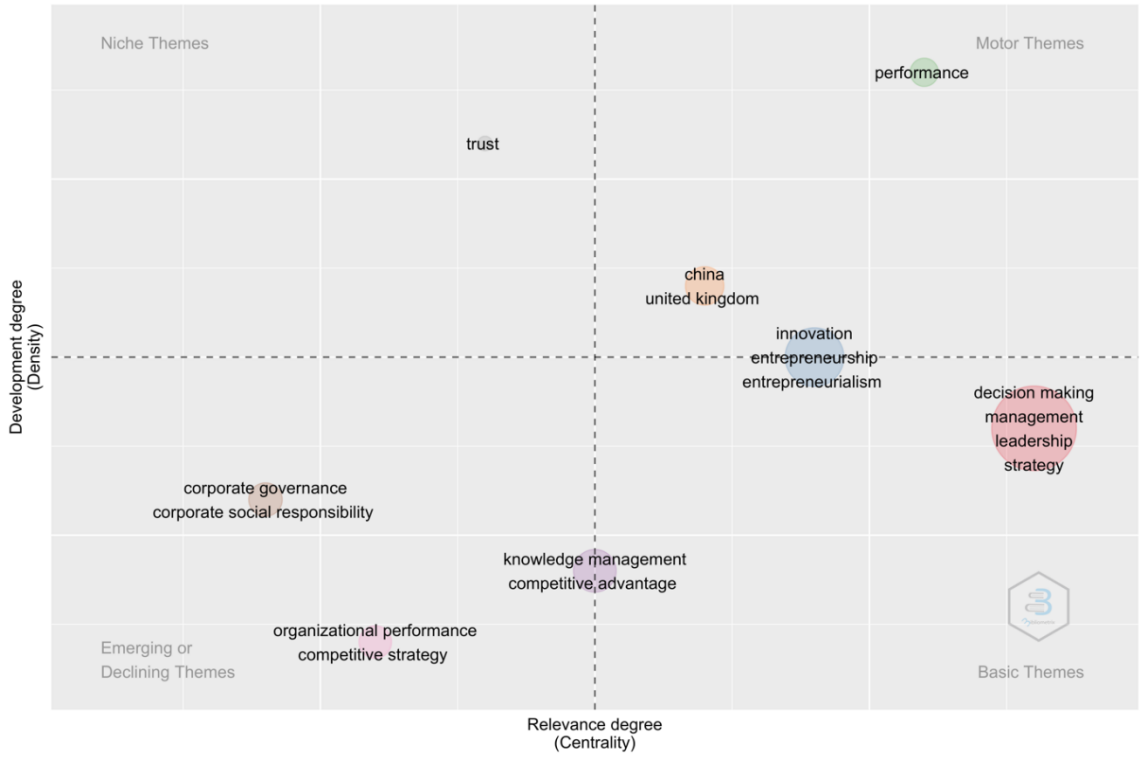

Figure 5. Conceptual thematic of MD

The topics represented in Motor themes quadrant, with high density and centrality, are indicating prevailing thematic topics within the MD. Specifically, topics such as performance and innovation,

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and even entrepreneurship are included in this quadrant. Moreover, topics encompassing China and United Kinddom provide incentives for the role of different context as potential markets for research within the MD.

In contrast, the topics in Emerging or Declining Themse quadrant, represents low density and centrality, indicate to research topics that have not been succsessfully developed since their appreance on the MD or the emerging themes that require further development in near future. This quadrant includes topics as corporate governance, corporate social responsibility, organizational performance, and competitive strategy.

In Niche Themes quadrant that represents topic with low density and high centrality, we are provided with topics that are lately being more developed in the MD. Thus, in this quadrant, there is only one topic related to trust. Resesarchers have analyzed the relevance of different themes with trust. Not to mention, this topic is not new since the first contribution published on MD is from 1997 which in that study the authors aimed to explain the role of trust in explaining the brand equity (Ambler, 1997). However, recent studies on MD are analyzing the role of trust within workplace related issues and its relationships with other workplace behavioral nexus such as job authonomy (Noble-Nkrumah, Anyigba, & Mensah, 2022).

Finally, in Basic Theme quadrant, representing topics that acquire high density and low centrality, there are research themes such as knowledge management, competitive advantage, entrepreneurialism, deicion making, strategy, management and leadership. This quadrant represent the most mainstream topics that have been developed in the MD journal since it's launch. The MD has welcomed nomerous contributions regarding the issues related to the topics located in this quadrant.

4.4. Thematic evolution of most relevant topics in MD

Complimenting our conceptual map analysis, Figure 6 visualizes the analysis of the thematic evolution of most relavant topics that have been investigated in MD. Provindig three different periods, we visualized the evolution of several topics through diffrernt eras. Contributions which were relevant to the topics including international trade, marketing, performance, competitive

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advantage, organizational change, strategy, ethics, employees, management and research initially appeared on MD. Looking into the second period, we realized the development in emergence of new research mainstrems which dealt with more specificity of the contributions. The topics which appeaed on this period were decision making, strategic managemet, business performance, management research, strategic alliance, marketing strategy. Topics such as innovation and globalization started to gain attention of scholars publishin on the MD. Moreover, it is notable to mention that united kingdom was a potential resrarch context within this period. Lastly, but yet importantly, the more recent era delved into emerging topics on the MD such such as corporate governance, organizational culture, creativity and so on.

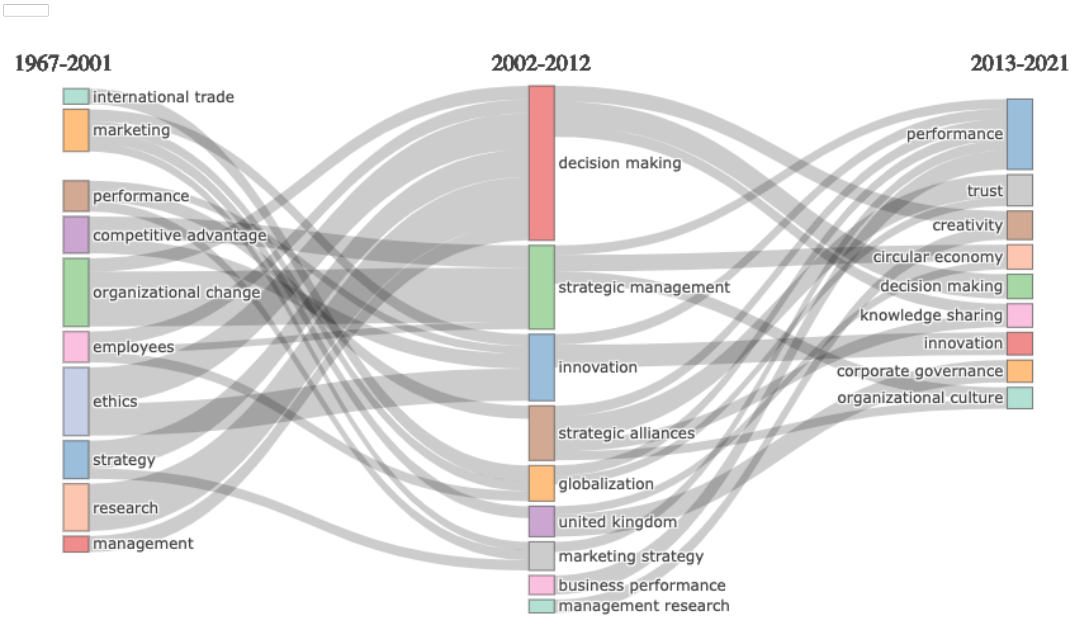

Figure 6. Thematic trends in MD

4.5. Temporal development of most influential topics in MD

As a last part of our visualization analysis, we have anlayzed the temporal development of most influencial topics in MD. From Figure 7, we can see that different topics have been in fashion in MD publications over the last fifty years. For example, in the early 1990s, the researchers focused on strategy management-related research. Whereas in the early 2000s, the main focus of MD publications was on leadership, innovation, and competitive advantage. While from 2010 to 2021,

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some new topics emerged, for example, Knowledge management, organizational performance, and organizational change.

Based on our differnt analysis of MD's contributiosn, we identified the following major key areas that make up the major portion of MD's publications:

- Innovation; entrepreneurship
- Corporate social responsibility; corporate governance; firms
- Knowledge management
- Industrial psychology
- Decision making
- Circular economy
- Quality management

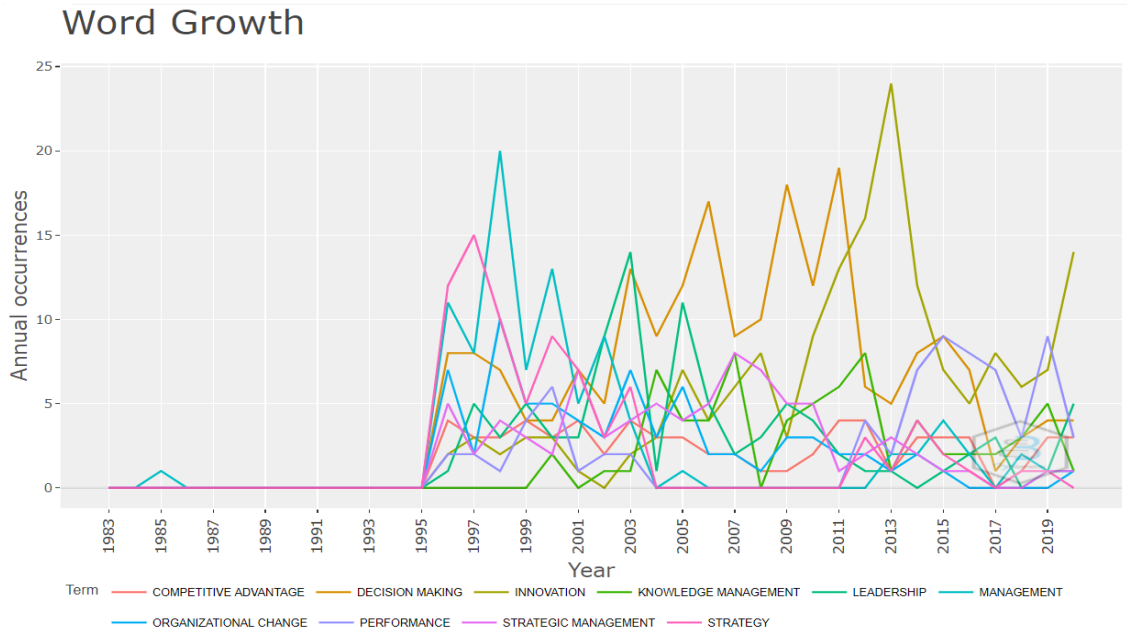

Figure 7. Temporal development analysis of topics on MD

4.5.1. Innovation and entrepreneurship

Innovation and entrepreneurship is a dominant theme in the MD journal. Studies on these topics published in the MD journal depict the antecedents of entrepreneurship and the relationship between

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entrepreneurial opportunity and individual-level innovation performance. Further articles published on these themes presented a relationship between culture and innovation. For instance, in their article, Tian et al. (2018) underpin the complex and idiosyncratic relationship between culture and innovation. Similarly, papers on this cluster also discussed organizational and environmental antecedents that impact the shaping of innovation ambidexterity in small and medium enterprises and how these innovations positively impact the firms' overall performance.

4.5.2. Corporate social responsibility; corporate governance; firms

The second most prominent cluster is related to corporate social responsibility and corporate governance—studies on these clusters and themes mainly discussed corporate social responsibility and innovation. Further, many scholars also investigated the relationship between corporate social responsibility and human behavior i.e., employee behavior. One of the studies conducted by Gao & He (2017) demonstrated the positive impact of the corporate socially responsible activities on the employees' citizenship behavior with the mediating role of leadership and moderating role of organizational distributive justice. Similarly, some studies also discussed how social media could enhance the impact of firms' responsible activities in the eyes of stakeholders, which could increase organizations' commitment and e-reputation.

4.5.3. Knowledge management

Knowledge management is also one of the central themes and clusters that scholars' published in the MD journal. Under this theme, studies discussed knowledge governance and how knowledge governance impacts knowledge sharing in organizations. Similarly, scholars' also discussed the impact of empowering leadership and its influence on knowledge management system adoption. Multiple studies are also conducted on the knowledge hiding behavior and the different strategies through which firms can mitigate the knowledge hiding behavior.

4.5.4. Industrial psychology

Industrial psychology underpins talent management, leadership, creativity, innovation, abusive supervision, organizational justice, psychological power, job satisfaction, and affective

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commitment. For example, an article written by Khalili (2016) investigated the link between transformational leadership employees' creativity and innovation. Findings of the studies suggested that employees' perception of a supportive climate for innovation moderates transformational leadership and employees' creativity. Further studies also confirmed that firms should invest in transformational leadership training. Further organizations should also invest in organizational climate improvement to provide a dynamic platform for employees to be innovative and creative in the workplace.

4.5.5. Decision making

Publication under this theme focused on different types of decision-making methods and techniques. For example, a study by Yazdani et al. (2019) offered a combined compromise decision-making algorithm with the use of several aggregation methods. The authors talked about the benefits of the study's combinatory technique. According to the article, there is a lot of consistency between the results of previously produced approaches. Similarly, to improve management thinking and close decision gaps, (Lu, Hu, Huang, & Tzeng, 2015) used a hybrid, multiple attribute decision model to evaluate the success of business-to-business m-commerce by SMEs in Taiwan. Another impactful study (López-Ospina, Quezada, Barros-Castro, Gonzalez, & Palominos, 2017) in this theme aimed to present a quantitative technique for determining the causal links between strategic objectives in a balanced scorecard strategy map. This is done in order to address the literature's potential flaws in terms of causal ties and the difficulty in validating associations. Some other decision-making techniques employed by authors under this theme are the analytic hierarchy process (Lin & Lu, 2012), VIKOR (Acuña-Soto, Liern, & Pérez-Gladish, 2019) and Evaluation Based on Distance from Average Solution (EDAS), to name a few (Ouenniche, Uvalle Perez, & Ettouhami, 2019)

4.5.6. Circular economy

Under these themes, the papers predominantly address different aspects of the circular economy. For instance, green innovation (Y.-S. Chen, Chang, & Wu, 2012), green technology (Song & Wang,

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2018), green purchase intentions (Akehurst, Afonso, & Gonçalves, 2012; Y.-S. Chen & Chang, 2012).

4.5.7. Quality management

Since MD has a vast scope that covers a range of management and decision-making areas thus, research related to quality management has also made a place in MD's publications. Studies related to quality management developed and tested different models and and frameworks using qualitative and quantitative methods. One such study (Y. Chen & Chang, 2013) integrated literature from different domains such as green marketing and relationship marketing to test the relationship between green perceived quality and green perceived risk, green satisfaction, and green trust. Some other studies (Yu, To, & Lee, 2012) explored quality management in the public sector.

5. Conclusions

The evolution and development of science is dependent on how the building blocks of existing knowledge are integrated. As such, bibliometric analyses can offer a timely and updated picture of the state of the art of a subject, furthering scholars' and researchers' understanding to foster a disciplines' progress. The purpose of this article was to investigate the publication trends across the over a half century of history of MD using a bibliometric analysis. We examined a broad range of the journal's performance in terms of citation and publication structure, most cited documents, and most productive authors, countries and universities. We also presented a visualization of co-citation, bibliographic coupling of countries, co-citation of the countries and co-occurrence of the most commonly used keywords in MD. The results showed a consistent increase in the number of citation and documents published, which we would expect to continue into the future as indicated by the strong showing of citations in recent years. It has to be noted how most of the highly cited articles in MD have been published within the last 20 years of the journal's existence, evidencing how the journal's growth in terms of quality and contribution.

The journal's stronghold has been traditionally in the United Kingdom and the United States of America; however, the journal continues to have contributions from across the globe with an increased influence from Europe more generally. The influence in terms of citations, submissions,

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and readership has also increased dramatically from developing countries; making MD a truly global research outlet in the management area.

The journal has had a strong showing in the areas of ethics, marketing, and strategy-related topics with a well-developed connection to top tier journals in these areas. In particular, there is a strong emphasis in the sub-topic of cognition for such areas as decision making, innovation, and knowledge management. As such, we see this as a general growth area for the journal and an area that can distinguish the journal from other management science outlets. In particular, we see great promise in multidisciplinary projects that can integrate theory and research from related science and scholarship (e.g., psychology, sociology, political science, decision science, economics, philosophy) with management science (e.g., Randolph-Seng, 2020). Such integration would also benefit from procedures and methods that go beyond traditional quantitative methods such as survey research to include the full spectrum of options from controlled laboratory research to creative qualitative methodologies.

Overall, the last half century of MD has led to a reputable outlet for management science. Such outcome was only made possible because of the tireless work of authors, reviewers and editors who have brought MD to the present. Based on our analysis, we believe that MD is well positioned to become a top tier outlet for the scientific advancement of management theory and practice.

CRediT Author Statement

Andrea Caputo: Conceptualization; Methodology; Formal Analysis; Writing – Original Draft; Writing – Review & Editing; Visualization; Supervision. **Mohammad Fakahr Manesh**: Methodology; Formal Analysis; Writing – Original Draft; Writing – Review & Editing; Visualization. **Muhammad Farrukh**: Writing – Original Draft. **Reza Farzipoor Saen**: Writing – Original Draft. **Fanchen Meng**: Writing – Original Draft. **Brandon Randolph-Seng**: Conceptualization; Writing – Original Draft; Writing – Review & Editing; Supervision.

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