

A BIBLIOMETRIC OVERVIEW OF THE INTERNATIONAL JOURNAL OF STRATEGIC PROPERTY MANAGEMENT BETWEEN 2008 AND 2019

Wei ZHOU¹, Zeshui XU^{2,*}, Edmundas Kazimieras ZAVADSKAS³

¹ School of Finance, Yunnan University of Finance and Economics, Kunming 650221, PR China

² Business School, State Key Laboratory of Hydraulics and Mountain River Engineering, Sichuan University,

Chengdu 610064, PR China

³ Institute of Sustainable Construction, Vilnius Gediminas Technical University,
Saulėtekio al. 11, LT-10223 Vilnius, Lithuania

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Abstract. The International Journal of Strategic Property Management (IJSPM) is an interdisciplinary journal which provides a forum for a broad range of strategic property management research. The topics such as asset and facilities management, property policy, risk management, residential property value enhancement, and housing finance are included in the scope of the IJSPM's investigation. The aim of this study is to provide a bibliometric analysis of the papers published by the IJSPM which is collected in the well-known Social Science Citation Index database and analyse the current status and the emerging trends of the research outputs in the IJSPM with some broadly utilized as well as diversely designed indicators. By analysing the annual publication distribution, the citation structure, the co-citation and cooperation networks, and the influential contributors on the aspects of specific countries/regions, institutions, cited journals, and authors, the status quo of the IJSPM publications is presented. Also, the emerging trends are explored through the analyses of timeline view and burst detection. We make the contributions in terms of visualizing the complex and significant results based on the objective and quantitative data. This paper assists researchers with an understanding of the development of the IJSPM, which gives useful information for further researches and submitting works.

Keywords: strategic property management, building service, bibliometrics, CiteSpace, VOSviewer, Web of Science.

Introduction

As explained by Cheng (1998), property management can be considered as some simple operations serving buildings. The researches nowadays tend to investigate property management and its strategic methods which aim to achieve specific goals. Being established in 1997, the International Journal of Strategic Property Management (IJSPM) is an interdisciplinary journal which provides a forum for a broad range of strategic property management research. In this journal, the multi-dimensional issues related to strategic property management are addressed. The topics such as the asset and facilities management, the property policy, the risk management, the residential property value enhancement, and the housing finance are included in the scope of the IJSPM's investigation. This journal is collected in the Social Science Citation Index (SSCI) database, with an impact factor of 1.571 according to the Journal Citation Report (2018) and ranked 145th among 192 journals in the management research area.

IJSPM was published by Vilnius Gediminas Technical University. It is believed that the review of the IJSPM is of great help for researchers to learn the development of strategic property management from diverse perspectives. Therefore, in this study, we focus on investigating the papers published in this journal to make a detailed and comprehensive analysis of the development of the IJSPM.

To provide an overview of the current status and the emerging trends of the IJSPM publications, CiteSpace and VOSviewer are selected as the main methods to investigate the current status and the emerging trends of the articles published in the IJSPM. Due to the reason that these two methods are efficient to present the co-citation network based on the article citations and reveal the structure of a particular research field (Chen, 2006), they are broadly applied for the bibliometric research. For example, Chen, Hu, Liu, and Tseng (2012) investigated the emerging trends of regenerative medicine by using CiteSpace. Similarly, by utilizing CiteSpace, Wei, Grubestic, and Bishop (2015)

*Corresponding author. E-mail: xuzeshui@263.net

presented a general picture of the GIS research field. Besides, some researchers also completed the scientometric investigations in the areas of the computer program (Van Eck & Waltman, 2009), the computer and information ethics (Heersmink, Hoven, Eck, & Berg, 2011) and the information literacy assessment (Pinto, 2015). Recently, based on the new and improved version, CiteSpace 5.0-5.4, which can be used to show more visualized results, Cui and Zhang (2018) reviewed the research on the circular economy. Based on the new VOSviewer, Stopar and Bartol (2019) mapped and visualized of trends and concepts in the secondary education.

There are also some bibliometric studies focus on the development of a specific journal. Hoffman and Holbrook (1993) constructed an intellectual structure of the co-citations of Journal of Consumer Research in its first year of establishment. Earp (2010) examined the Journal of Higher Education and its influence in the research area. In recent years, hospitality management was also investigated with bibliometric tools based on International Journal of Hospitality Management (Francisco, Mercedes, & Bartolomé, 2016). Furthermore, some scholars tend to concern about the journals in particular areas. For instance, Feeley (2008) attempted to rank the journals in the communication research field based on the impact ratings. Frandsen (2005) proposed an approach of citation analysis by utilizing multiple linear regressions for the cited and citing economic journals. Shilbury (2011) identified the most cited sport management journals on the basis of citation analysis. Besides, Ding (2017) analyzed the typical SCI journals in the research area of natural medicines. In recent years, Yu, Xu, Kao, and Lin (2018), Tang, Liao, and Su (2018), Xu, Yu, and Wang (2018), and Thijs and Glanzel (2018) respectively bibliometrically overviewed the development trends of IEEE Transactions on Fuzzy Systems, International Journal of Fuzzy Systems, International Journal of Machine Learning and Cybernetics, and Scientometrics.

Moreover, various interesting bibliometric researches are carried out which mainly explore the relations between journals and other elements that may affect their growth. For instance, S. H. Wang, H. J. Wang, and Weldon (2007)

discussed the internationalization of China's English-language academic journals by considering the impact factor, the citation amount, the rank on Journal Citation Report, and the proportion of international papers and citations. Grandjean, Eriksen, Ellegaard, and Wallin (2011) revealed the Matthew effect in the publications of environmental science through investigating chemical substances in the journal articles. Falagas, Zarkali, Karageorgopoulos, Bardakas, and Mavros (2013) analyzed the relation between the article length and the future citation amount by using the data retrieved from 5 major general medical journals. Koc and Boz (2014) compared and analyzed the top three tourism journals and found out that a large number of research articles published by these journals have not resorted to triangulation. Sun et al. (2018) bibliometrically studied the orthopedic publications from China in four main journals to show some valuable insights for orthopaedists. Even though the diverse research areas have been considered as the bibliometric investigation objectives, few attempts have been made to analyze the current status and emerging trends of strategic property management, not to mention a particular journal in this field.

Since this paper focuses on investigating the research published on the IJSPM, it is necessary to compare this journal with other similar ones. Therefore, a general comparison among the main journals in the area of property management is given. In order to make it clearly explained, we have illustrated some key information about each journal which can be seen from Table 1. Obviously, the sum of citations that the IJSPM has obtained is far more than other similar journals in the research field of property management. Besides, the publication frequency for each journal is different. Most of them publish quarterly and bimonthly; however, Pacific Rim Property Research Journal and Journal of Financial Management of Property and Construction publish less frequently. Furthermore, the main scopes of these journals are also listed in the table. It can be seen that they share some similarities in terms of real estate-related and house-related management. By analyzing the details of research scopes for these journals, there are more overlaps between the IJSPM and

Table 1. Comparison among the IJSPM and other similar journals

Journal	Scope	Citations	Publication frequency
International Journal of Strategic Property Management	Asset and facilities management, property policy	2.218	Quarterly
Property Management	Land use and development, marketing and leasing	155	Bimonthly
Journal of Property Research	Property investment & finance, land development	93	Quarterly
Pacific Rim Property Research Journal	Property market dynamics, modelling property markets	72	Tri-annual
Journal of Property Investment & Finance	All property types that contribute to investment	230	Bimonthly
Journal of Financial Management of Property and Construction	Project and corporate financing, risk management	/	Tri-annual
Journal of Facilities Management	Property management, built environment	/	Quarterly

Note: The citation records of Journal of Financial Management of Property and Construction and Journal of Facilities Management cannot be found on the SCIE, SSCI or AHCI databases of WoS.

Property Management and Journal of Property Research and Journal of Property Investment & Finance, while Pacific Rim Property Research Journal tends to accept articles that investigate property markets. As for the Journal of Property Investment & Finance and Journal of Property Research, both of them contribute to the research of investment-related issues. Additionally, Journal of Financial Management of Property and Construction tends to focus on financial issues of property and constructions, while Journal of Facilities Management pays more attention to environmental quality and housing maintaining.

In general, the IJSPM has an overwhelmed advantage on the aspect of research impact in the field of property management. Also, the investigations involved in this journal are multidisciplinary. However, it should be pointed out that more collaborations among different institutions and countries are encouraged to improve the research diversity from different perspectives. Compared with other simple overviews, this paper tends to be a research article that analyzes the development of scientific outputs published on the IJSPM by using quantitative bibliometric methods and visualizing the knowledge domain of this journal's research. With regard to the contributions that this paper makes, we not only provide the visualized analytic results, making the knowledge domain easily understand for researchers, especially the beginners who are interested in this journal, but also provide insightful analysis such as co-citation analysis, timeline view, burst detection, and co-author network according to the results given by the bibliometric tools. Being different from other articles, we present an insightful review by utilizing two bibliometric tools, namely CiteSpace and VOSviewer. Therefore, the development of the IJSPM in terms of current status, hot spots and emerging trends are comprehensively analyzed.

As aforementioned, a large number of bibliometric studies investigate certain research areas. Besides, some investigations classify the journals in the same fields and focus on these journals. More specifically, some scholars only pay attention to one journal. As far as we know, there is no attempt to comprehensively investigate the knowledge domain of the IJSPM's research. As a result, this paper aims at presenting a general picture of strategic property management by utilizing CiteSpace and VOSviewer to analyze the articles published in the IJSPM.

In order to achieve the above goal, we make a bibliometric overview and visualization of the IJSPM. The paper is organized as follows: Section 1 mainly analyzes the publication number and the citation structure of the articles published in the IJSPM. The influential institutions, papers, authors, countries and regions, the co-citation network of authors cited by the IJSPM publications are shown in Section 2. The cited authors and the cited journals with the strongest citation bursts, the timeline view for the IJSPM keywords and all the keywords co-occurrence network of the IJSPM publications are investigated in Section 3. Finally, in last section, some conclusions are given based on the above results.

1. The publications, citation numbers and citation structure of the IJSPM

1.1. Data collection

In order to investigate the current status and the emerging trends of the IJSPM's research, different analyses should be given by utilizing kinds of different and relative software. In this section, we take the searching method of CiteSpace as an example due to the reason that its process is more complicated, and there are some overlaps between the operations of CiteSpace and other similar software. Some information in articles such as keywords, journals, and reference that appear or co-cite with high frequency can be revealed by CiteSpace through selecting different node types. The important index that identifies the above nodes is called betweenness centrality. The betweenness centrality is defined in Eq. (1).

$$Centrality(node_i) = \sum_{i \neq j \neq k} \frac{\eta_{ik}(i)}{\eta_{jk}}, \quad (1)$$

where: η_{jk} represents the amount of the shortest paths between the node j and the node k . Moreover, $\eta_{ik}(i)$ denotes the amount of the abovementioned paths which pass through the node i .

An article which owns high betweenness centrality is relatively more crucial in a co-citing network (Li, Porter, & Wang, 2017). In this paper, different papers and the relevant clusters with important effect are demonstrated on the basis of betweenness centrality. Further, as explained in the following section, the timeline of keywords that received strong citation burst are also presented based on this index.

In this study, WoS is chosen to be the data source for our scientometric investigation due to the reason that there are approximately 12,000 leading journals available on this platform, including the Science Citation Index Expanded (SCIE), the Social Sciences Citation Index (SSCI), and the Arts & Humanities Citation Index (AHCI) databases (Van-Leeuwen, 2006). Therefore, by searching the articles published by the IJSPM, there are 336 papers published by this journal between 1 January 2008 and 1 March 2019. It should be noted that the first article in the IJSPM was published in 1997 which are unavailable on the WoS. In order to investigate the development trends of this journal in recent years, the data between 1 January 2008 and 1 March 2019 are selected. Furthermore, an architecture diagram is given to clearly show the searching process, which can be seen from Figure 1.

1.2. Types and research directions of the IJSPM

As shown in Figure 2, all of the publications in the IJSPM are classified into 4 types based on the analytic results given by the WoS. It can be clearly seen that 323 of them are articles, which occupies a great proportion of all the documents. Besides, there are 7 documents are editorial materials, 4 reviews, and 2 corrections. The structure of

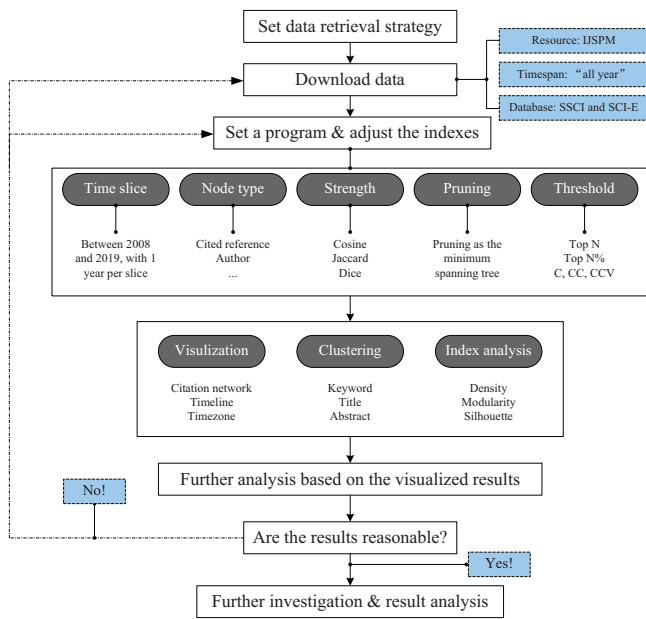


Figure 1. Architecture diagram of the data analysis

document types is simpler than the structure of research directions which can be found in Figure 3.

Obviously, the mainstream of these publications is business economics, following with computer science, construction building technology, mathematics, engineering, and social issues. These directions account for more than half of the total number. Due to the reason that the IJSPM is included in the management area, a large number of research outputs are related to business economics. Also, the property management in this journal tends to be strategy-oriented, most of the publications propose effective methods to achieve some specific goals. Therefore, directions such as computer science, construction building technology, mathematics, engineering are involved in these publications as the theoretical bases. In addition, the investigations in the IJSPM are carried out to deal with some practical problems, hence other research streams are relevant to specific issues in the real world.

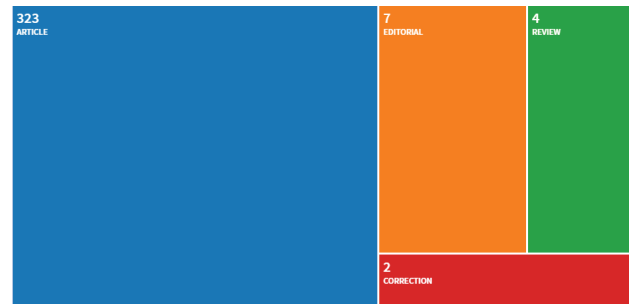


Figure 2. Types of the IJSPM publications

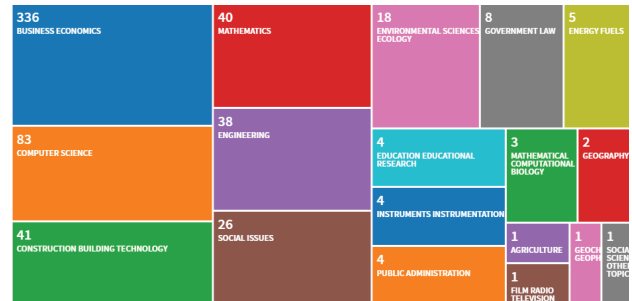


Figure 3. Research directions of all the papers in the IJSPM

1.3. Publication and citation numbers of the IJSPM

The publication and citation numbers of the IJSPM are considered as the direct clues to present the development track of this journal. Therefore, the numbers of publications and citations in each year are illustrated in Figures 4 and 5, respectively. It can be seen from Figure 4 that the growth of article number between 2008 and 2018 is stable. In the first two years, from 2008 to 2009, the number of publications was less than 25. After that, the publications are between 25 and 35 from 2008 to 2017. It is obvious to see that the research outputs increase rapidly in 2018, reaching a peak of 43 articles.

The distribution of citations from 2008 to 2019 is shown in Figure 5. Based on the searching result on the WoS, there is no citation record in 2008. However, the citation number climbs year by year after 2009, except for which in 2016. A sharp growth can be found in 2017 and 2018, suggesting that strategic property management has been attracting increasing attention in the recent 2 years.

Table 2. Annual citation structure of the publications in the IJSPM

Year	≥20	≥15	≥10	≥5	≥1	TP	TC	AC	H-Index
2009	0	0	0	1	20	25	38	15.20	12
2010	0	0	4	7	33	30	107	8.20	10
2011	0	0	1	6	45	27	124	8.52	9
2012	0	0	1	8	63	26	151	11.54	10
2013	0	0	2	7	73	28	164	5.61	7
2014	0	0	2	6	85	31	197	5.55	8
2015	0	0	2	12	109	31	244	5.13	7
2016	0	0	1	9	117	33	230	2.88	6
2017	1	2	3	16	157	31	380	2.03	4
2018	0	0	2	18	167	43	384	0.28	2
2019	0	0	0	0	51	15	62	–	–
Total	1	2	18	91	924	–	–	–	–

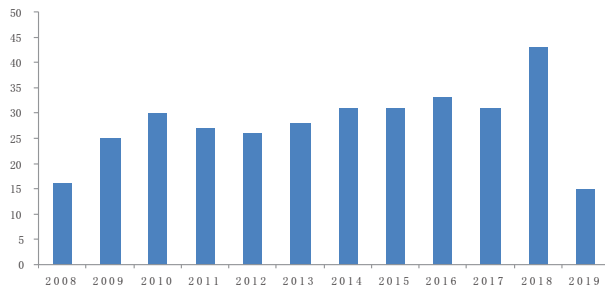


Figure 4. Distribution of the IJSPM publications by years (2008–2019)

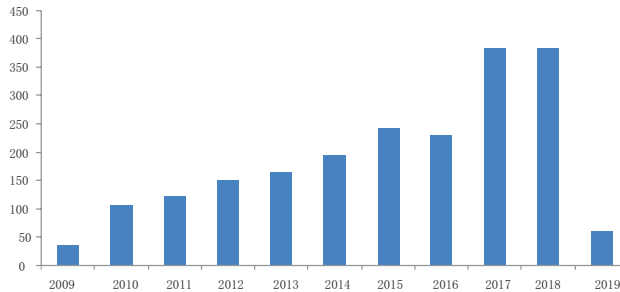


Figure 5. Distribution of citations by years (2008–2019)

1.4. Citation structure of the IJSPM

To know more details about the citation number of the articles published in the IJSPM, a citation structure is shown in Table 2 with the information about the total publications (TP), the total citation (TC), and the average citations per year (AC). Besides, the H-index was proposed by Hirsch (2005) which indicates the number of papers an author has published in certain years. Therefore, this parameter is significant to evaluate the researchers’ scientific outputs. Based on the data given by the WoS, there is only 1 paper cited over 20 times in 2017. Nevertheless, the number of citations has been gradually increased in these years. It can be seen that the amount of influential papers has also grown as time goes by. Besides, the paper entitled “A location value response surface model for mass appraising: An “iterative” location adjustment factor in Bari, Italy” (D’Amato, 2010) has been cited over 20 times, which focuses on a new model of mass appraising. Furthermore, the article entitled “Rating methodology for real estate markets – Poland case study” (Renigier-Biłozor, Wisniewski, Kaklauskas, & Biłozor, 2014), which was published in 2014 has 15 citations in 2017, the paper proposes

a methodology for developing the real estate market ratings, and it determines the types and factors of information affecting real estate market decision-making.

2. Influential institutions/papers/authors/countries/regions and co-citation network

More specifically, the influential institutions, papers, authors, countries or regions, and the co-citation network are illustrated in this section to comprehensively analyze the current status of the IJSPM. As we can see from Table 3, the most active institutions are listed with more than 100 total citations. Vilnius Gediminas Technical University has published the most papers, and its total citations are 709, which are far more than other institutions. The following is The Hong Kong Polytechnic University with 46 publications. The University of Salford from England is in third place with 19 publications. Among the top 5 most productive and influential institutions, Lithuania, England, and Finland are from Europe. Therefore, the institutions in Europe have significantly influenced this research area.

Besides, the co-authorship network could clearly reflect the collaboration among the influential authors in different organizations. Similarly, the organization citation network illustrates the connections among the institutions which contribute a lot in this area. The cooperative relationship among organizations is shown in Figure 6. As can be seen from this network, each node represents an organization; the bigger size of a node indicates that the corresponding organization has more research outputs. Moreover, the lines represent the links between every two organizations. From Figure 6, we know that Vilnius Gediminas Technical University has the most papers which also frequently collaborates with other organizations. It cooperates with the University of Memphis, University of Salford, Universiti Teknologi Malaysia, University of Moratuwa, etc. Additionally, The Hong Kong Polytechnic University also has published many articles, however, its collaboration with other institutions is not as frequent as which of Vilnius Gediminas Technical University.

Figure 7 shows the citation network of organizations, and Table 4 lists the top cited organizations. We can see that all of the 10 organizations are cited for more than 40 times. Vilnius Gediminas Technical University has 706 citations which are the most prominent institution, following with The Hong Kong Polytechnic University, which has 237 citations.

Table 3. The most productive and influential institutions in the IJSPM

Rank	Institutions	Country/Territory	TP	TC	AC	H-index
1	Vilnius Gediminas Technical University	Lithuania	48	709	14.77	14
2	The Hong Kong Polytechnic University	Hong Kong	46	237	5.15	9
3	University of Salford	England	19	132	6.95	7
4	Aalto University	Finland	17	130	7.62	8
5	University of Memphis	USA	10	103	10.3	6

Table 4. The citation rank of organizations in the IJSPM

Rank	Organizations	Documents	Citations	Total link strength
1	Vilnius Gediminas Technical University	48	706	34
2	The Hong Kong Polytechnic University	46	237	17
3	University of Salford	19	132	20
4	University of Memphis	10	103	28
5	Aalto University	13	81	8
6	University Institute of Lisbon	9	75	26
7	Zhejiang Sci-Tech University	5	56	9
8	Tallinn University of Technology	8	44	15
9	Queensland University of Technology	7	43	3
10	The University of Hong Kong	6	42	4

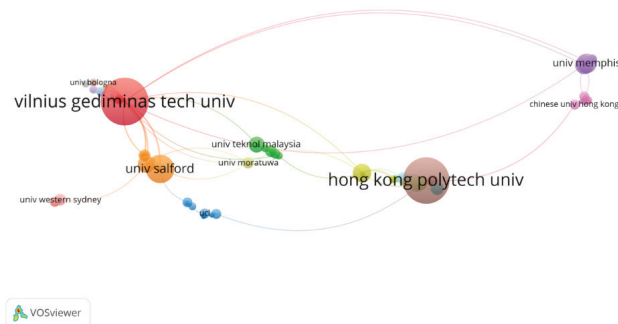


Figure 6. Organization co-authorship network of the IJSPM publications

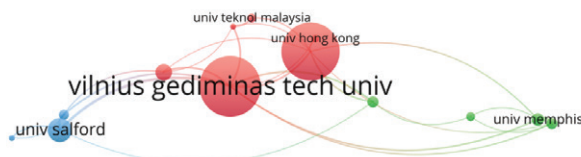


Figure 7. Organization citation network of the IJSPM publications

Table 5 lists the top 30 highly cited publications in the IJSPM according to WoS. As shown above, there are eight papers in the IJSPM being cited more than 30 times. The most cited paper is “The concept model of sustainable buildings refurbishment”, which was written by Mickaitytė, Zavadskas, Kaklauskas, and Tupėnaitė (2008). It has the highest TC which is nearly twice as much as the second paper “Maintenance strategy selection using AHP and COPRAS under fuzzy environment” (Fouladgar, Yazdani-Chamzini, Lashgari, Zavadskas, & Turskis, 2012) and “The concept model of sustainable buildings refurbishment” (Mickaitytė et al., 2008) also has the highest AC. In this paper, the authors emphasized the significance of sustainable development and proposed a conceptual sustainable public buildings refurbishment model, which

made great contributions to the field of sustainable property management.

In the second paper, Fouladgar et al. (2012) tried to clarify that the fuzzy theory provides an appropriate tool to evaluate the feasible maintenance strategy. The third paper (Zavadskas, Kaklauskas, & Vilutienė, 2009) devotes to presenting the comparative analysis of dwelling maintenance contractors in order to determine the degree of their utility for users and the bidding price of services. These highly cited papers are all published from 2008 to 2015, hence the papers published in recent years still need time to catch up. In a word, the 30 articles mentioned above are of great benefit to the development of the IJSPM.

There have been 54 countries published papers in the IJSPM from 2008 to 2019, and the top 5 most productive countries are listed in Table 6. They are China, Lithuania, England, Australia, the USA. Each of these countries has published more than 20 articles in the IJSPM from 2008 to 2019. Among the 5 countries, Lithuania and England are from Europe.

Also, it can be found that China is the most productive country with 67 articles published in the IJSPM. However, China does not take the leading position in consideration of total citations. On the other hand, Lithuania, the country that is ranked at the second place with 53 articles, has the absolute advantage when considering the quality and the quantity of the research outputs. Therefore, the contributions made by Lithuania is also remarkable.

The co-authorship among countries/regions is shown in Figure 8. From Figure 8, we can see that China and Lithuania are the two main contributors in this area. Besides, England, Australia, and the USA also have lots of publications in the IJSPM. China, Taiwan (China), Malaysia, and Australia had the obvious co-authorships. Moreover, England, Lithuania, Scotland, and Estonia also have clear co-authorships. In the IJSPM, scholars from China and Australia completed 12 papers in co-operation, indicating that these two countries closely collaborated, following with the link between Iran and Lithuania. In today’s society, international communication is beneficial.

Table 5. Most cited papers in the IJSPM from 2008 to 2018

Rank	Title	Author(s)	TC	Year	AC
1	The concept model of sustainable buildings refurbishment	Mickaitytė et al.	102	2008	8.5
2	Maintenance strategy selection using AHP and COPRAS under fuzzy environment	Fouladgar et al.	55	2012	6.88
3	Multicriteria evaluation of apartment blocks maintenance contractors: Lithuanian case study	Zavadskas et al.	49	2009	4.45
4	Selection of facade's alternatives of commercial and public buildings based on multiple criteria	Saparauskas et al.	39	2011	4.33
5	Modelling the impact of wind farms on house prices in the UK	Sims et al.	38	2008	3.17
6	Risk management in road construction: The case of Sri Lanka	Perera et al.	34	2009	3.09
7	Greenhouse locating based on ANP-COPRAS-G methods – an empirical study based on Iran	Rezaeiniya et al.	32	2012	4
8	A location value response surface model for mass appraising: An “iterative” location adjustment factor in Bari, Italy	D'Amato	30	2010	3
9	The web-based real estate multiple criteria negotiation decision support system: A new generation of decision support systems	Urbanaviciene et al.	29	2009	2.64
10	A multiple criteria framework to evaluate bank branch potential attractiveness	Ferreira et al.	28	2012	3.5
11	End-user oriented public-private partnerships in real estate industry	Majamaa et al.	28	2008	2.33
12	The conceptual model of construction and real estate negotiation	Urbanaviciene et al.	27	2009	2.45
13	Rating methodology for real estate markets - Poland case study	Renigier-Bilozor et al.	26	2014	4.33
14	Community involvement in post-disaster re-construction – case study of the British red cross Maldives recovery program	Lawther	26	2009	2.36
15	A fuzzy decision-making approach for portfolio management with direct real estate investment	Hui et al.	24	2009	2.18
16	The construction sector in twenty European countries during the recession 2008–2009-country ranking by MULTIMOORA	Brauers et al.	23	2013	3.29
17	A study on the development of a cost model based on the owner's decision making at the early stages of a construction project	Koo et al.	22	2010	2.2
18	Knowledge model for post-disaster management	Kaklauskas et al.	22	2009	2
19	Hedonic analysis of price in the Istanbul housing market	Keskin	21	2008	1.75
20	Panel building refurbishment elements effective selection by applying multiple-criteria methods	Kracka and Zavadskas	20	2013	2.86
21	Identification and allocation of risks associated with PPP water projects in China	Xu et al.	20	2011	2.22
22	Appraisal of combined agreements in BOT project finance: Focused on minimum revenue guarantee and revenue cap agreements	Jun	20	2010	2
23	Public-private-people partnership as a way to reduce carbon dioxide emissions from residential development	Kuronen et al.	20	2010	2
24	Income approach and property market cycle	D'Amato	19	2015	3.8
25	Industrialized housing in China: A coin with two sides	Zhang and Skitmore	19	2012	2.38
26	Disaster knowledge factors in managing disasters successfully	Seneviratne et al.	19	2010	1.9
27	Legislation for effective post-disaster reconstruction	Rotimi et al.	19	2009	1.73
28	Valuation of market uncertainties for contaminated land	Bartke	18	2011	2
29	Building up resilience of construction sector SMEs and their supply chains to extreme weather events	Wedawatta et al.	18	2010	1.8
30	Proactive contracting in Finnish PPP projects	Tieva and Junnonen	18	2009	1.64

Table 6. The 5 most productive countries of the IJSPM publications

Rank	Countries	TP	TC	AC	H-index	≥15	≥10	≥5	≥1
1	China	67	310	4.63	11	0	0	10	161
2	Lithuania	53	731	13.79	14	1	15	47	218
3	England	42	248	5.9	8	0	0	10	125
4	Australia	35	197	5.63	9	0	0	7	97
5	USA	28	170	6.07	9	0	1	8	76

The major author collaboration network is shown in Figure 9. We can find that Kaklauskas has more collaborations with other authors including Zavadskas, Amaratunga, Gudauskas, Raslanas, and Banaitis. Among these authors, Zavadskas and Amaratunga also have close cooperation. Table 7 lists the top 12 productive authors in the IJSPM. According to Table 7, Hui is the most productive author who has 21 papers between 2008 and 2019, which accounts for 6.25% in the 336 papers. Following with Hui, Zavadskas whose research articles are 18 that occupies

Table 7. Top 12 productive authors in the IJSPM

Rank	Number of publications	Author	Percentage
1	21	Hui, E. C. M.	6.25%
2	18	Zavadskas, E. K.	5.36%
3	17	Kaklauskas, A.	5.06%
4	12	Amaratunga, D.	3.57%
5	10	Ferreira, F. A. F.	2.98%
6	7	Chan, A. P. C.	2.08%
7	6	Chan, K. K. K.	1.79%
8	6	Falkenbach, H.	1.79%
9	6	Haigh, R.	1.79%
10	6	Keraminiyage, K.	1.79%
11	6	Lill, I.	1.79%
12	6	Wilkinson, S.	1.79%
Total	121	–	36.01%

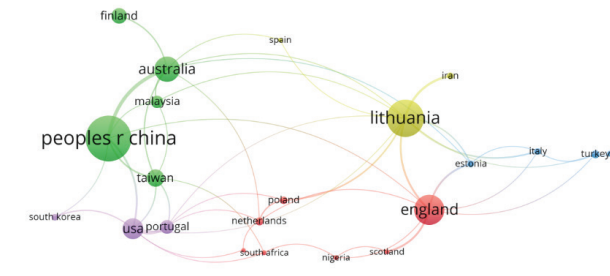


Figure 8. Country/region co-authorship network of the IJSPM publications

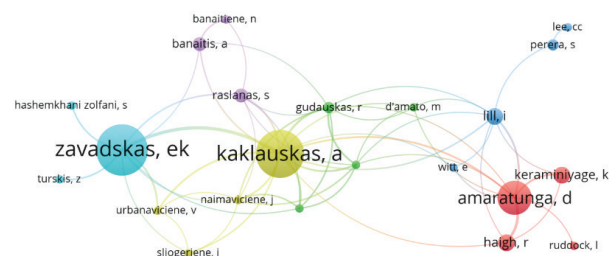


Figure 9. Author co-authorship network of the IJSPM publications

5.36% in the 336 papers. All of the most active authors have published more than 5 papers in nearly 12 years. More importantly, there are 121 papers written by these authors which accounts for 36.01% of the total amount.

A visualization of the author co-citation network can directly reflect the co-citation relation among the authors in this area. Figure 10 illustrates the co-citation network of the authors. According to the analysis results given by VOSviewer, the 8721 authors have been cited by the IJSPM publications. We set the threshold value at 10, and 103 authors have involved the threshold. As can be seen from Figure 9, each cluster is identified with different colors, and each node represents an author. The thickness and the distance of the line indicate the relevance to the authors. For example, Kauko and Satty are closely related, the line connects them is therefore relatively thick. The close distance between Zavadskas and Satty reflects their stronger relation. The nodes in different sizes represent the co-citation amount. Thus, we can see that Zavadskas shares more similar citations compared with other authors.

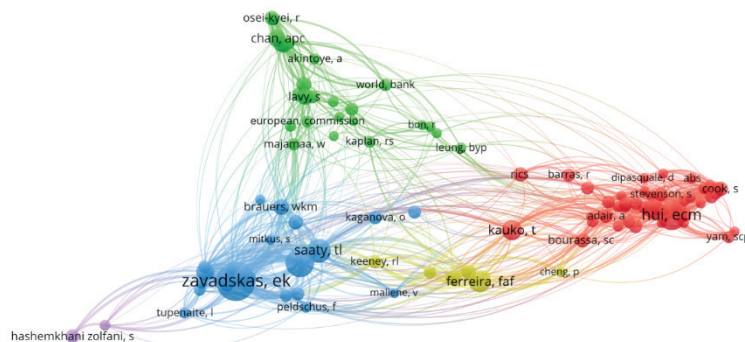


Figure 10. Co-citation network of authors cited by the IJSPM publications

3. Author and journal burst detection, timeline view, and co-occurrence network

Citation burst means that a paper has received a sharply increasing number of citations in a certain period of time. As a result, it could be used to reflect the dynamic changes of researches published in the IJSPM. From Table 8, all the

authors received the citation bursts in 2008. Kaklauskas, as a cited author, has the longest duration that began in 2009 and ended in 2013 years. Moreover, the strength of Kaklauskas is the strongest. The period of Bana e Costa has the strongest citation bursts from 2014 to 2016, which is the closest to the present.

Table 8. Top 12 cited authors with the strongest citation bursts in the IJSPM from 2008 to 2019

Cited authors	Year	Strength	Begin	End	2008–2019
Kaklauskas	2008	4.1284	2009	2013	████████████████████
Turskis	2008	3.1413	2009	2012	████████████████████
Banaitiene	2008	2.9164	2010	2013	████████████████████
Urbanavičienė	2008	4.0301	2009	2011	████████████████████
Lahdenperä	2008	2.9492	2009	2011	████████████████████
Ginevičius	2008	3.4772	2010	2012	████████████████████
Zavadskas	2008	3.4717	2010	2012	████████████████████
Medineckiene	2008	3.796	2011	2013	████████████████████
Bana e Costa	2008	2.9204	2014	2016	████████████████████
Majamaa	2008	3.318	2011	2012	████████████████████
Kuronen	2008	2.7627	2011	2012	████████████████████
Brauers	2008	2.8	2012	2013	████████████████████

Table 9. Top 25 cited journals with the strongest citation bursts

Cited journals	Strength	Begin	End	2008–2019
Land Economics	3.2539	2008	2011	████████████████████
International Journal of Strategic Property Management	3.366	2008	2009	████████████████████
The Economic Development Journal of Canada	3.9568	2008	2011	████████████████████
Journal of Property Investment	3.7551	2008	2010	████████████████████
Journal of Property Finance	3.0742	2009	2013	████████████████████
Disaster Prevention and Management	3.1125	2009	2010	████████████████████
International Journal of Environment and Pollution	4.5189	2009	2013	████████████████████
Australian Journal of Emergency Management	2.884	2009	2010	████████████████████
Transport-Vilnius	3.0789	2011	2013	████████████████████
Inzinerine Ekonomika-Engineering Economics	3.1318	2011	2013	████████████████████
Harvard Business Review	2.9551	2011	2015	████████████████████
Journal of Environmental Engineering and Landscape Management	3.5203	2011	2013	████████████████████
Applied Economics	2.9488	2012	2013	████████████████████
Journal of Business & Economic Statistics	3.595	2012	2015	████████████████████
Informatica-Lithuania	2.5994	2012	2013	████████████████████
Journal of Econometrics	3.1653	2013	2016	████████████████████
Journal of the American Real Estate and Urban Economics Association	2.9715	2014	2015	████████████████████
The Review of Economic Studies	2.9304	2014	2015	████████████████████
International Journal of Production Economics	4.1144	2014	2016	████████████████████
Journal of Radiation Research	2.8739	2015	2019	████████████████████
Journal of the Operational Research Society	3.1865	2015	2016	████████████████████
European Journal of Operational Research	2.748	2015	2016	████████████████████
Quarterly Journal of Economics	2.9526	2015	2016	████████████████████
The Review of Economics and Statistics	2.66	2015	2019	████████████████████
Regional Science and Urban Economics	3.1806	2015	2019	████████████████████

To investigate the hot topics in the research field of the IJSPM, the timeline view and the keywords co-occurrence network are shown in Figures 11 and 12. Figure 12 presents a timeline visualization of the 8 clusters. The biggest cluster is #0 “ripple effect”, following with the clusters “facades alternative” and “public-private partnership project”. The timeline view of keywords is used to explore the main hot topics of the publications in the IJSPM at different time periods, it gives access for researchers to know the emerging trends in a certain period. The keywords of the articles in the IJSPM in 2008 are “real estate”, “project”, “selection”, “construction”, “public-private partnership project”, “management”, “model”, and “design”. The keywords of the publications in the IJSPM in 2013 are “house price” and “strategy”. The keywords of the publications in the IJSPM in 2018 are “perspective”, “PPP project”, “policy”, “quantile regression”, “land value”, and “metropolitan area”. Through the timeline view of keywords, it can be found

that the authors in this area began to pay attention to more microscopic issues in recent years.

Figure 11 illustrates all of the keywords co-occurrence network of the IJSPM publications, the keywords “model”, “construction”, “China”, and “selection” appeared most frequently. “Model” appears for 53 times, and “construction” appears for 30 times of all the keywords. It is found that “model” is more related to the construction of real estates, especially for post-disaster reconstruction. Thus, many research papers in the IJSPM aim at helping more people to identify, predict, and solve the problems that are relevant to the post-disaster reconstruction.

Table 9 lists the top 25 cited journals with the strongest citation bursts by the IJSPM, which is to say that each of the listed 25 journals has been cited frequently by the IJSPM in certain time periods. The first cited journal with the strongest citation burst is Land Economics which began in 2008 and ended in 2011. Land Economics focuses on the

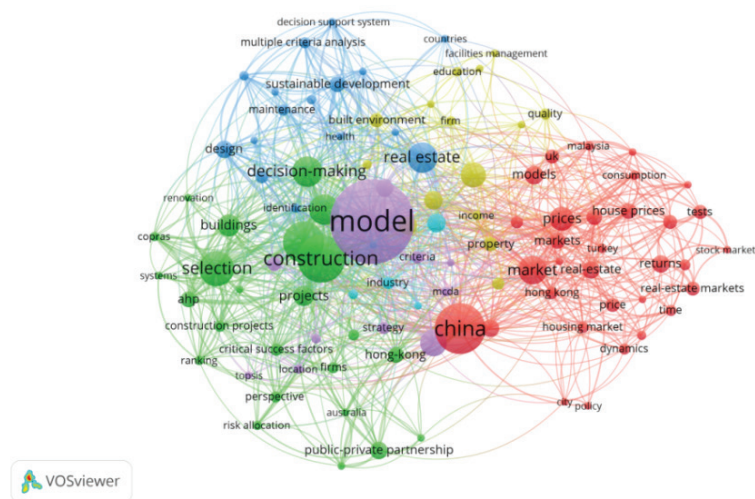


Figure 11. All keyword co-occurrence network of the IJSPM publications

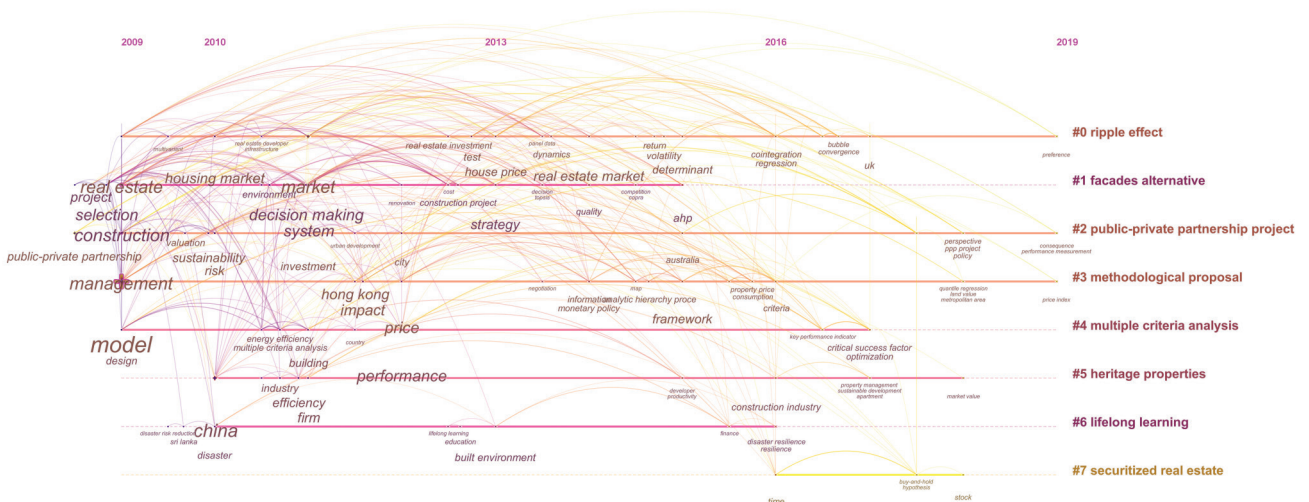


Figure 12. Timeline view for the IJSPM keywords

economics of natural and environmental resources. It publishes conceptual or empirical works with direct relevance for public policy. Besides, *Journal of Property Finance*, *International Journal of Environment and Pollution*, *Harvard Business Review*, *Journal of Radiation Research*, *The Review of Economics and Statistics*, *Regional Science and Urban Economics* have the longest lasting time. *International Journal of Environment and Pollution* has the highest value of strength, *International Journal of Environment and Pollution* is a refereed journal that provides an international platform for the research of environment and pollution, it focuses on the medium-term challenges involving scientific prediction, modeling and assessment, and social and economic policy areas. The strongest citation bursts of *The Review of Economics and Statistics* and *Regional Science and Urban Economics* continue until now, so these two journals still have an influence on the IJSPM, and both of the two journals address economic issues. *The Review of Economics and Statistics* publishes articles in empirical economics. This journal also collects the papers or symposia devoted to a single topic of methodological or empirical interest. *Regional Science and Urban Economics* promote and encourage high-quality scholarship on crucial issues in regional and urban economics.

Conclusions

This paper has presented a bibliometric overview and visualized research structure of the IJSPM between 2008 and 2019. Before that, we have briefly introduced the publication history, the focus fields, and the document types of the IJSPM. Then, we have utilized the two effective bibliometric tools, namely CiteSpace and VOSviewer, to comprehensively analyze the current status and the emerging trends of the research articles in the IJSPM. Specifically, the publication number and the citation structure of the IJSPM, the influential institutions/papers/countries/regions, the citation network, the most cited papers, the co-citation network of authors, the analysis of keywords and the strongest citation bursts, etc., are presented. We have found that: The articles published in 2017 have been cited most frequently, while there are more papers released in the IJSPM in 2018. China, Lithuania, England, Australia, and the USA are the most productive countries. In terms of the institutions that have contributed a lot in this area, Vilnius Gediminas Technical University is the most productive and influential organization. As for the cited journal with citation burst, they have been constantly attracted the attention from the articles published in the IJSPM between 2008 and 2019. The strongest citation bursts of *The Review of Economics and Statistics* and *Regional Science and Urban Economics* continue until now. In consideration of the hot topics and the emerging trends in this research area, the keyword of “model” appeared most frequently. Hui has 21 publications in the IJSPM, he is the most productive author. Kaklauskas, as a cited author, has received the longest duration of citation burst which began in 2009 and ended in 2013 years.

“The Concept Model of Sustainable Buildings Refurbishment” (Mickaitytė et al., 2008) is the most cited paper in the IJSPM.

By providing a general picture of the research outputs in the IJSPM, this paper has contributed to comprehensively analyze the current status and the emerging trends of its publications, which helps researchers know more about the development of this journal in an intuitionistic way. Due to the reason that the IJSPM focuses on strategic property management, this paper has also given an intellectual structure of this research area from the perspective of a particular journal. It is suggested that more investigations collaborated by the authors from different institutions and countries can be considered for publishing to improve the research diversity in different aspects. In terms of future research, more elements could be further considered to impact the development of the IJSPM such as the article length and the main methods used by the papers published in this journal. Therefore, more deep insights could be given based on new findings.

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Author contributions

WZ, ZX, and EZ conceived the study and were responsible for the design and development of the data analysis. WZ and ZX were responsible for data collection and analysis. WZ, ZX, and EZ were responsible for data interpretation. WZ wrote the first draft of the article.

Disclosure statement

We have no financial, professional, or personal interests from other parties.

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