

Bibliometric Overview of European Journal of Information Systems Between 1991 and 2022.

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Abstract

Established in 1991, the European Journal of Information Systems (abbreviated as EJIS) is widely regarded as the preeminent international journal in the field of “information systems and management”. This article's objective is to provide a bibliometric overview of the research trends that have been observed in this journal between the years 1991 and 2022 (till May). The publication data of all of the documents that were published in EJIS during this particular time period have been extracted from Scopus database and analyzed with the help of R Studio and VOSviewer. These documents primarily include articles, reviews, editorials, conference papers, and notes. In addition, citation analysis and keyword analysis have both been carried out in order to determine emerging patterns in the research. According to the study, EJIS is one of the most important journals with growing number of research publications year by year based on the analysis outcomes. This study is helpful to understand questions such as the scientific productivity, annual production, authors, institutions, and countries, etc.

Keywords

EJIS, Bibliometric analysis, Information systems, VOSviewer and Biblioshiny.

1. Introduction

The European Journal of Information Systems (abbreviated as EJIS) is an international journal that covers all areas of Business and Information systems topics including technology, development, implementation, strategy, management, and policy. EJIS first appeared in 1991 founded by Ray J. Paul and the first editor – in – chief was Pär Ågerfalk, Uppsala University. It is widely regarded as the preeminent international journal in the field of “information systems and management”. Presently EJIS is listed in A* category as per the Australian Business Deans Council (Australian Business Deans Council (ABDC)., 2019). Since then, EJIS has altered as a result of social advancements, which significantly enhanced the journal's submission process. The number of researchers has increased significantly around the world along with developing countries majorly in European perspective on theory and practice of information systems. This leading IS journal is publishing 4 issues annually between 1991 and 2005. But with the increasing academic interests in IS research, currently EJIS is publishing, six issues per year since 2006. EJIS has a significant impact on business IS research and is currently one of the top academic publications in the field. Due to the increasing attention towards IS (Information systems) research, the IS community has become more international, and there have been substantial shifts in the practises governing the distribution of financial support to academia.

However, with such trends and shifts what effects have had on the research that is presented in EJIS is still less obvious. The number of bibliometric analysis in this leading information systems journal is scant. An in-depth and exhaustive analysis is required in order to gain an understanding of the productivity of a journal. The diversity of the institutions and nations that have published articles in the journal, as well as the number of citations, the most productive authors, and the most cited publications, all contribute to the journal's overall productivity (Knight et al., 2000). To the best of the authors' knowledge, there has not been performed any kind of in-depth bibliometric analysis on EJIS in order to evaluate its productivity up until this point in time. Many of the bibliometric studies analyse only

one journal to provide a broad picture of the leading trends in that journal (Fagerberg et al., 2018; Hsieh & Chang, 2009; Knight et al., 2000; Podsakoff et al., 2008; Vishwakarma & Mukherjee, 2019). This type of analysis dates back to almost three decades ago. In recent years, a growing number of studies study a journal for a certain time period, frequently due to the publication's anniversary. Other studies offer alternative methods for examining journals, such as citation analysis perspectives (Borokhovich et al., 2011) and journal comparisons (Cordeiro et al., 2010; Córdoba et al., 2012).

2. Research Objective

The purpose of this study is to assess the major influences on the journal from a broad viewpoint, taking into consideration influential articles, authors, institutions, and nations. According to (Gölgeci et al., 2022), the bibliometric analysis offers a quantitatively accurate scientific and structural review. The study employed 1129 papers from the Scopus database published between 1991 and 2022 for bibliometric analysis using VOSviewer and R studio. The type of analysis focused in this study is on 5 types: Co- authorship, Co-occurrence, Citation, Bibliographic coupling, and Co- citation. A co-citation and citation analysis is used to pinpoint the several works connected to the IS research that have the greatest impact. The primary focus of the study is on overall citation structure, most cited articles, the top 20 articles that have been cited by the papers published in EJIS, journals where articles published in EJIS are mostly cited, 20 most productive authors in Information systems research. In addition to examining the productivity of EJIS, this study employed visualisation of similarities software (VOS) and Biblioshiny with R studio programming for the graphical examination of bibliographical data extracted from the Scopus database.

There are various academic outcomes of this study. Primarily, this research provided 1. The EJIS's annual citation structure. 2. Lists the EJIS papers with the highest citations. 3. The top institutions, nations, and writers that contributed. Additionally, it listed the order of the journals that had the most people cite EJIS papers. Furthermore, it has examined how the top contributing universities and countries have changed over time. This article identifies the areas on which the journal could concentrate more in order to boost the number of best entries submissions by looking at the evolution of the keywords cited by the writers over time. As a result, our descriptive analysis of the research papers published in EJIS has added to knowledge by highlighting trends in research and gaps. Additionally, we have now contrasted the Scopus citation records with those of the Google Scholar databases for historical significance. As a result, this study provides a summary of the key elements influencing EJIS significance in information systems research. Finding the best papers in this prestigious IS journal will also assist the IS researchers in enhancing the calibre of their literature review.

3. Research Methodology

Bibliometric analysis is majorly used to assess the content of the past literature published in a particular area or topic. The advantage of this methodology is to quantitatively represent the bulk qualitative literature systematically, in beautiful and quick representations. Such kind of analysis is often referred to as scientometric, was first applied in the field of library and information science. Bibliometric analysis can also be conducted for a particular journal to assess its productivity based on journals publications and citation patterns. For example, Vishwakarma & Mukherjee (2019) analysed productivity of a single journal i.e., 43 years journey of Tourism recreation research journal using bibliometric analysis.

4. Results

This section presents the main bibliometric results found in Scopus for the EJIS articles dating between 1991 and 2022. EJIS has published 1129 studies until 2022, May. It has received about 62,835 citations with cite score of 11.1 and almost 55.65 citations per document.

4.1 Publication and citation structure of EJIS

Since 1991, EJIS has published studies in information systems perspective. Following Figure 1 represents the number of publications between 1995 and 2022. Although initially journal has published less number of articles, there is drastic increase from 2005. It is observed that EJIS has published more articles in the last 15 years i.e., from 2007 to 2022 when compared to previous decade (1995-2006).

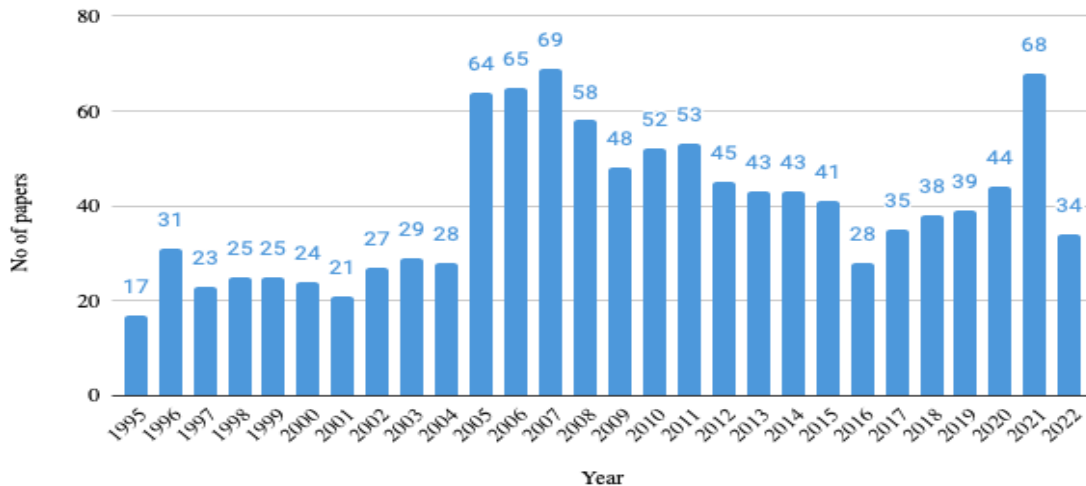


Figure 1. Annual number of publications in EJIS Journal

Table 1 represents the 20 most global cited documents taken from Scopus database of EJIS which includes various citation aspects of documents. This table represents the total global citations of documents, citation per year (citation/age of article) and citations year wise from 2011-2022. Global citations indicate the number of citations of each document corresponding to all journals covered in the Scopus database. Notably this study also presented Google scholar citations for the top 20 documents. To compare the articles, citations per year is also considered for analysis. So far manuscript written Walsham, G. on “Interpretive case studies in IS research: nature and method” published in the year 1995 have received highest number of citations. The aforementioned research has been cited around 2356 times according to Scopus and 5720 times according to Google Scholar citations due to the significance of the subject matter in the field of IS literature.

The article entitled “Measuring information systems success: models, dimensions, measures, and interrelationships.” Published in the year 2008 has received citation per year ratio of 70.67. Also, the article titled “Doing interpretive research” received second highest citation per year ratio of 73.87. And the article highest citation per year score of 84.14 is by Walsham, G which also have highest number of Google scholar citations. According to these findings, this journal has highest significance in IS research.

Table 1. The 20 most global cited documents of EJIS according to Scopus

Title	Authors	Year	Total Citations	TC per Year	Google Scholar Citation	2017	2018	2019	2020	2021	2022
Interpretive case studies in IS research: nature and method	Walsham, G.	1995	2356	84.1	5720	135	154	150	162	133	66
Doing interpretive research	Walsham, G.	2006	1255	73.8	3228	97	117	112	134	102	67
Measuring information systems success: models, dimensions, measures, and interrelationships.	Petter, S., DeLone, W., & McLean, E.	2008	1060	70.7	2566	89	87	101	97	99	61

Protection motivation and deterrence: a framework for security policy compliance in organisations.	Herath, T., & Rao, H. R.	2009	789	56.4	1467	74	92	91	82	90	63
Understanding online purchase intentions: contributions from technology and trust perspectives.	Van der Heijden, H., Verhagen, T., & Creemers, M.	2003	699	35	1738	47	53	53	51	59	38
Electronic business adoption by European firms: a cross-country assessment of the facilitators and inhibitors	Zhu, K., Kraemer, K., & Xu, S.	2003	656	32.8	1382	39	40	51	59	40	29
Enterprise agility and the enabling role of information technology	Overby, E., Bharadwaj, A., & Sambamurthy, V.	2006	620	36.5	1207	46	60	56	76	54	42
The business model concept: theoretical underpinnings and empirical illustrations	Hedman, J., & Kalling, T.	2003	508	25.4	1500	45	40	36	24	39	15
Vicious and virtuous cycles in ERP implementation: a case study of interrelations between critical success factors	Akkermans, H., & van Helden, K.	2002	500	23.8	1160	45	70	51	113	90	68
A method for taxonomy development and its application in information systems	Nickerson, R. C., Varshney, U., & Muntermann, J.	2013	488	48.8	887	19	26	14	20	15	4
Developing a unified framework of the business model concept	Al-Debei, Mutaz M., and David Avison	2010	472	36.3	1182	47	61	40	56	56	25
Do I really have to? User acceptance of mandated technology	Brown, S. A., Massey, A. P., Montoya-Weiss, M. M., & Burkman, J. R.	2002	458	21.8	1048	24	26	26	33	24	14

Using grounded theory as a method for rigorously reviewing literature	Wolfswinkel, J. F., Furtmueller, E., & Wilderom, C. P.	2013	439	43.9	1068	27	38	56	70	107	71
Diversity in information systems action research methods	Baskerville, R., & Wood-Harper, A. T.	1998	415	16.6	981	13	12	9	12	20	13
Innovation diffusion in global contexts: determinants of post-adoption digital transformation of European companies	Zhu, K., Dong, S., Xu, S. X., & Kraemer, K. L.	2006	396	23.3	831	37	55	64	91	83	60
FEDS: a framework for evaluation in design science research	Venable, John, Jan Pries-Heje, and Richard Baskerville	2016	389	55.6	893	25	39	46	53	63	27
Physicians' resistance toward healthcare information technology: a theoretical model and empirical test	Bhattacharjee, A., & Hikmet, N.	2007	385	24.1	337	25	35	30	51	48	23
The benefits and dangers of enjoyment with social networking websites	Turel, Ofir, and Alexander Serenko	2012	379	34.5	720	37	50	48	65	55	38
On theory development in design science research: anatomy of a research project	Kuechler, Bill, and Vijay Vaishnavi	2008	351	23.4	779	20	31	28	44	32	21
Social ties, knowledge sharing and successful collaboration in globally distributed system development projects	Kotlarsky, J., & Oshri, I.	2005	350	19.4	646	22	24	18	17	14	9

Furthermore, this study has examined most local cited documents in EJIS. Figure 2 depicts the Top 20 most Local cited documents from the Scopus database. Local citations measure the number of citations of the documents corresponding to the same journal i.e., EJIS. It is observed that the most cited article is by Walsham, G on “Interpretive case studies in IS research: nature and method” with a number of citations 65 within this journal EJIS (Walsham, 1995).

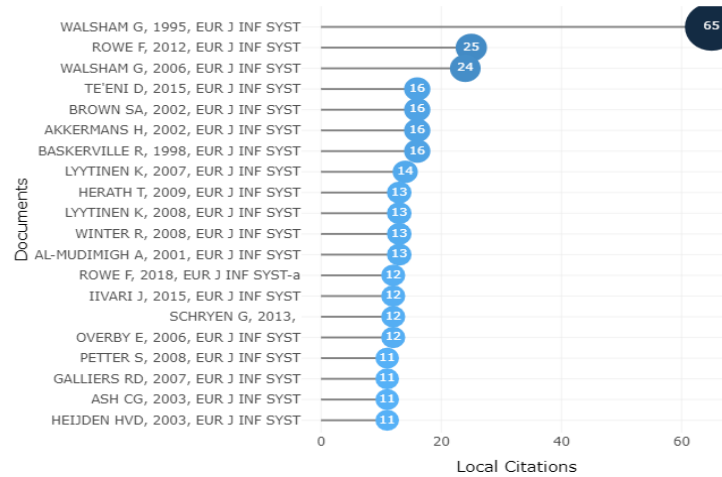


Figure 2. The 20 most Local cited documents of EJIS

4.2 Country Analysis

This study has also identified the country analysis. To summarise the results from the previous figure and tables, let us now look into the country-wise analysis.

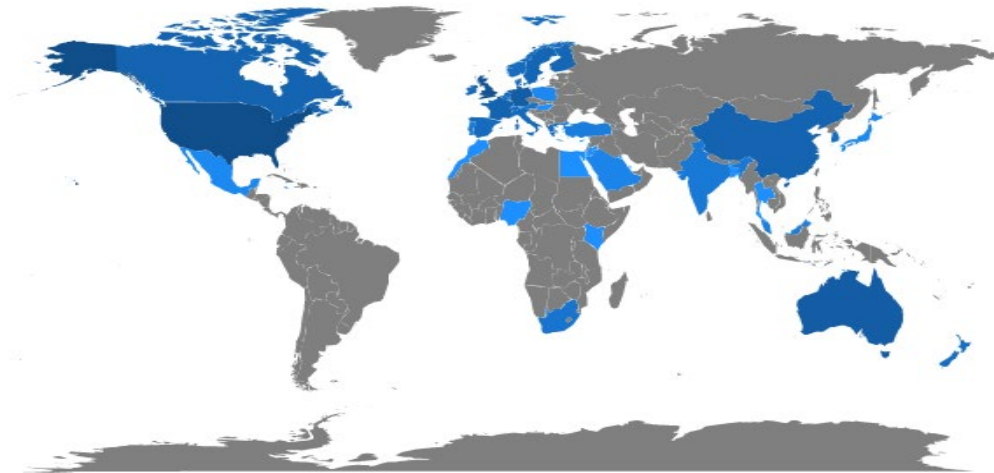


Figure 3. Country Scientific Production

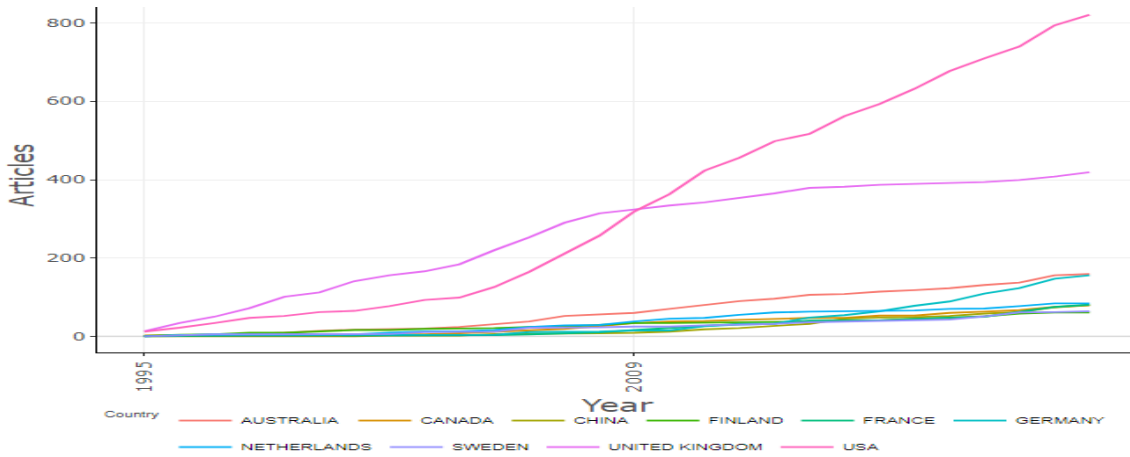


Figure 4. Countries' Production over Time

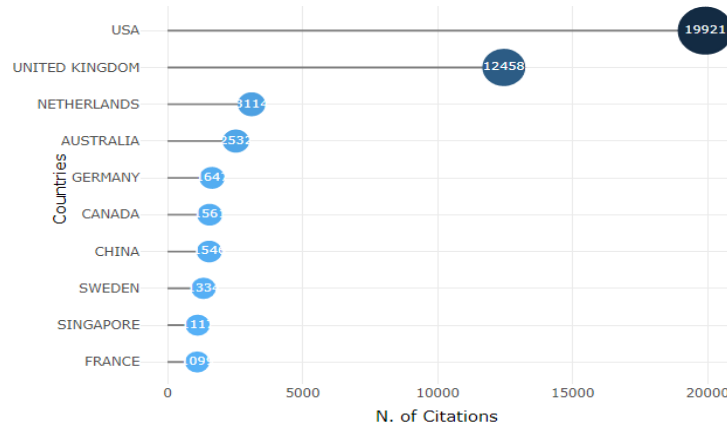


Figure 5: Most Cited Countries

The above Figure 3 depicts the scientific production of the countries published in this journal. It is observed that most of the publications are from USA and UK. Figure 4 represents the country's production over time in this journal. Now let us examine the list of most cited countries. USA and UK have received the highest citations, followed by the Netherlands, Australia, and Germany are in the top 5 on the list in Figure 5.

A further interesting issue is how countries are interlinked. The bibliographic coupling gives a clear view of this. Figure 6, presents the bibliographic coupling of the countries for the publications between 1995 and 2022 in EJIS with a threshold value of 5 documents in 29 connections i.e., minimum number of documents in a country is set to be 5. Out of 79 countries, 29 meet the threshold. The results are very similar, because the size of the circle indicates the productivity. The countries with highest number of citations are observed to be USA and UK. USA is the most productive country and has the largest connectivity network map.

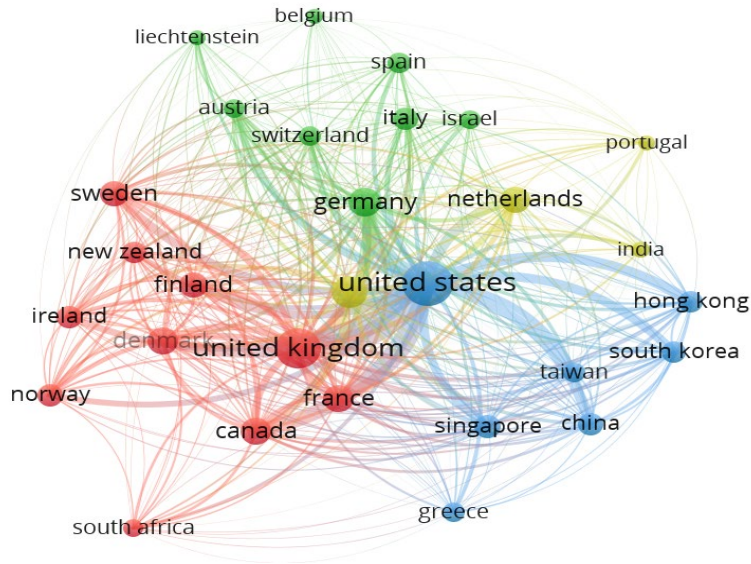


Figure 6. Bibliographic coupling of countries that publish in the EJIS.

Let us now examine the co authorship for the publications in EJIS between the results from 1991 to 2022 in Figure 7. The results show the similar outcomes as in the case of bibliographic coupling because the size represents the productivity. The only difference is in the linkages and network connections, where the focus is on those countries co-authoring a significant number of documents.

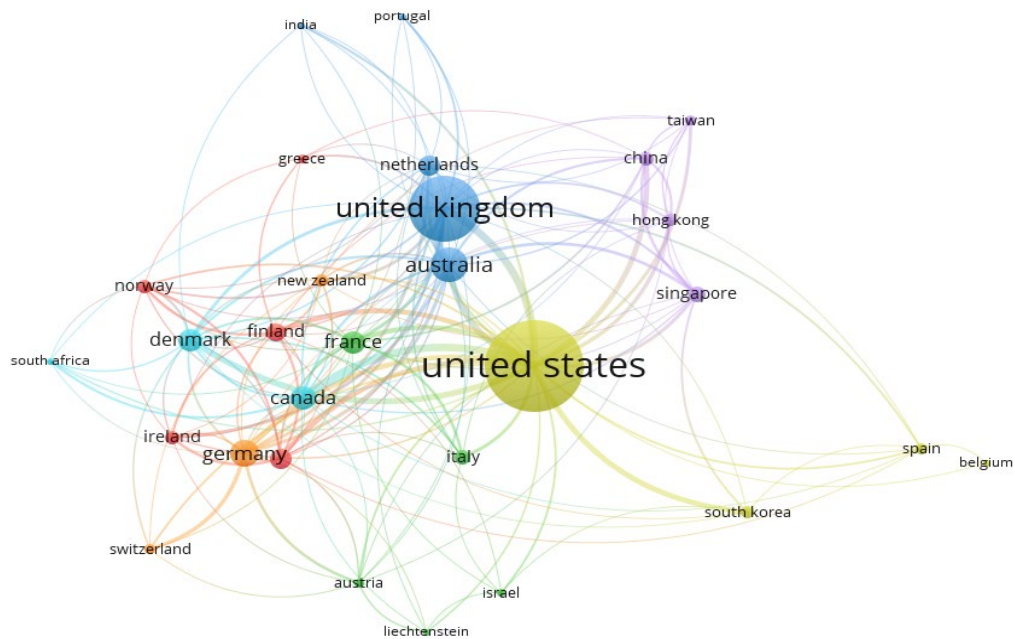


Figure 7: Co Authorship of Countries published in EJIS

4.3 Organizations analysis

Another interesting issue is to map the publications of the most productive institutions in EJIS. We first examined the list of top 10 institutions based on articles published as shown in Figure 8. It is observed that Georgia state university has highest publications with 63 articles. Followed by Brunel university with 47 articles. Also, Figure 9 represents the

institutions production of articles over a period of time in this journal. Georgia state and Brunel university are the most influential universities in the graph. From a general perspective, institutions from the same country tend to have stronger connections and tends to strengthen the productivity in this journal.

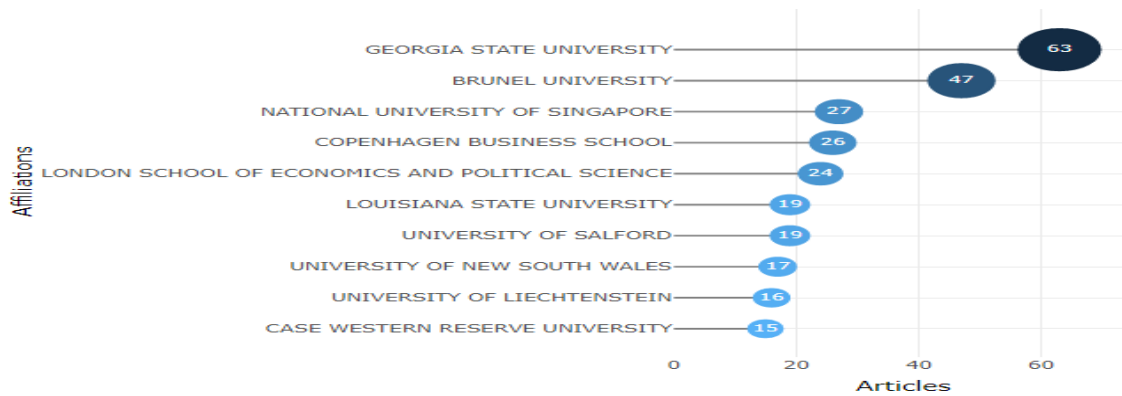


Figure 8. Most Relevent Affiliations

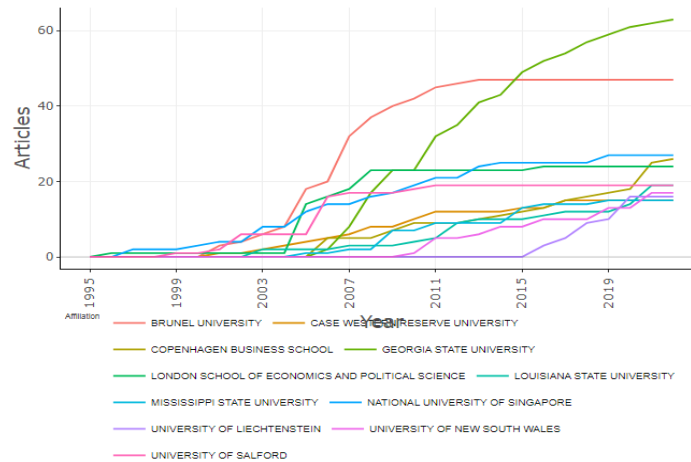


Figure 9. Affiliations' Production over Time

4.4 Keywords Analysis

Finally let us analyse the leading key words in EJIS. Author keywords are usually those key words that appear below the abstract to identify the topics of the paper. Thus Figure 10 represents the word cloud of authors key words, which shows the authors key words for the documents published in EJIS between 1991 to 2022. Also, Figure 11 analyses the co-occurrences of author keywords for the documents in EJIS with a threshold of 5 (minimum number of occurrences of keyword per document and out of 2942 keywords, 70 meet the threshold criteria. Information use is the most common keywords with the deepest network during past 30 years. Other significant words are decision making, behavioural research, social networking, information management etc. These illustrate that the journal is targeting specifically of information systems research.



Figure 10. Word cloud Keywords Plus

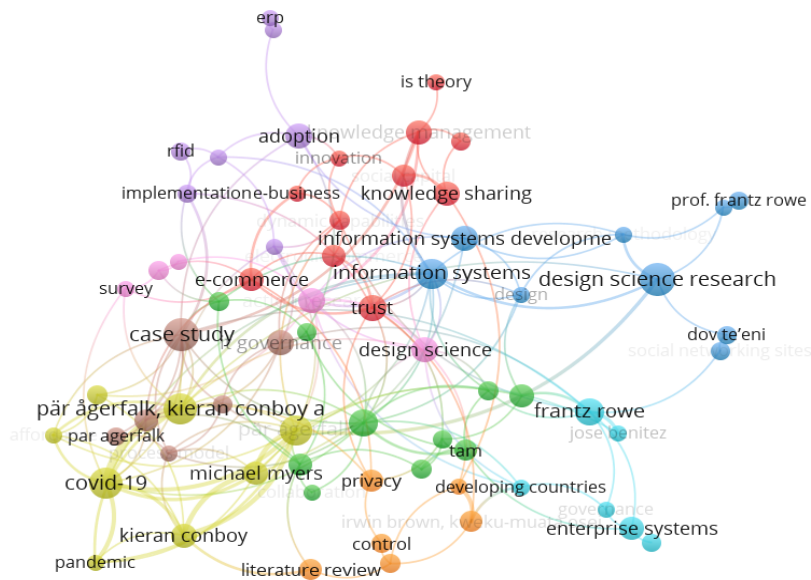


Figure 11. Co-occurrence of author keywords of documents published in the EJIS.

5. Conclusions

The European Journal of Information systems is 30 years old. To celebrate this anniversary, this study presents the bibliometric overview of the leading trends of this journal over the past 30 years. This study analyses over wide range of issues through bibliometric indicators, including most cited documents, most cited authors, country wise analysis, organizations affiliations wise analysis and keywords analysis.

The results indicate that USA is the most influential country, with several leading authors and affiliated institutions from this country published in this journal, followed by UK. From the general perspective, Georgia state university from USA is most productive institute in this journal, followed by Brunel university from UK. Most of the leading countries are economically developed countries in this journal. Certain developing countries also appear in the list, but with low number of publications includes India, China, and South Africa.

Based on the current trends, we anticipate an increase in the number of publications from European institutions. Recently, these nations have made significant strides in the journal, although they are still far away from British publishing standards. The assumption is, however, that they will continue to improve and, at some point in the future, attain levels comparable to those of the United Kingdom, particularly for the major European nations of France, Germany, Italy, and Spain.

The journal is strongly connected to most of the Information systems research journals. To strengthen the analysis, results from VOSviewer and Biblioshiny are presented using graphical and visual representations. The analysis includes, co citations, bibliographic coupling, citation, co authorship, co-occurrences, word clouds, etc. The main advantage of this is to understand the trends of publications in the journal in a quantitative way very easily.

It should be pointed out that the data is collected only from Scopus database. Therefore, the limitation of database might be involved in this study. When handling bibliographic material, Scopus and Web of Science, for example, employ full counting. That is, instead of a fractional unit based on the number of co-authors, these databases supply one publishing unit to each co-authoring participant. As a result, documents with numerous co-authors are more significant in the analysis than papers with a single author. The approach employs fractional counting in the map - based analysis with the VOSviewer to tackle this problem. Because the findings from full and fractional counting are so close, the conclusion is that there is no substantial difference between the two counting systems.

Other limitations of the study should be considered. However, the overall goal of this study is to present an overview of the journal's major trends based on key bibliometric indices. As a result, journal readers get a broad perspective of the most important data from EJIS through 2022. However, keep in mind that these results are dynamic and subject to change when new mainstream themes emerge and particular factors increase or decrease their place in the journal.

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