
A Bibliometric Analysis: Online Banking and E-shopping

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Abstract

The main objective of this paper is to explore the growth of review of literature on online banking, E-commerce, and Internet banking. This topic is relevant in present era due to the high growth of the E-commerce business in the World. We explored the articles from 2001 to 2020 for collecting data for analysis purposes. This study uses 471 research articles from the Web of Science Database's core collection for analyzing the growth of research. Vos viewer and Biblioshiny software tools are used for analyzing the existing literature. This research can provide the knowledge for future researchers regarding the existing literature which is related to highly cited journals and highly cited authors. This paper found that on an average citation per document is 75.10. The highly-cited document is written by GEFEN D, in 2003 that is MIS QUART.

Key terms-Online banking, Citation, Internet banking, E-shopping

Introduction

In the present era internet can affected the business. The internet has brought a substantial change in traditional industries. With the rapid development of internet technology and online banking offers an online transaction's platform to support many e-commerce applications such as online shopping, online auction, online soaping and internet stock trading. E-commerce is defined as the use of internet to facilitate, execute and process business transactions.(DeLone & McLean, 2004) There are some risks like as security/privacy risk, financial risk, social risk, time/convenience risk, and performance risk which attached with online banking, that affects the customers' intention to use online banking (Lee, 2009). Some consumers hesitate to transact web-based transactions because of fear of information stolen by hackers. Trust is a big thing that makes customers comfortable to using online facilities (Mc Knight et al., 2002). E-loyalty is an attitude toward the e-retailer that

results in repeat to purchase behaviour. E-retailers have started to identify the customers and offer them a customized product (Srinivasan et al., 2002). A higher level of perceived risk associated with internet usage's privacy risk will de-motivate customer intention to provide personal information on the internet (McKnight & Chervany, 2001).

Some factors that motivate the customer to use online banking transactions are related to benefits and attitude of customers. The perceived risk de-motivates the customer intention to use online services (S et al., 2002). Risk perception is related to internet security which is a significant issue for new and experienced consumers. Government try to find out some new measures to control risk and regulate the e-commerce market (Fernandez & Miyazaki, 2001).

Present paper's objective is to give a clear vision of the growth of research in respective subjects with scientific method of bibliometric analysis. Bibliometric analysis is used for performance analysis and science mapping in research (Zupic

& Cater 2015). Performance analysis checks the performance of individuals and research journals. While Science mapping is used to check the structure and changes in research. We have limited research papers to citation analysis and term co-occurrence analysis. Bibliometric is a study that performed systematically. Present paper is organised as:

- Research Methodology.
- Data Analysis and Interpretation.
- Discussion of results.
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Research Methodology:

Present data is collected from the Web of Science Database. Researchers have explored the Web of Science Database for bibliometric study. The first step for bibliometric analysis is to identify

the search terms. In the present paper various search criteria are used to analyze the research. This paper has used the PRISMA technique to search and select the articles from the Web of Science Database. In the present study Inclusion and Exclusion criteria has been used for searching the research articles.

Search Terms

Identify Search Terms:

Identify search terms is the first step before starting research. We used the PRISMA technique to precede the analysis part. PRISMA stands for preferred reporting items for systematic review and meta-analysis. A proper sequence is necessary in selection and outcome reporting of articles for study (Moher et al., 2016).

Table no 1. Selection of Database

Selection of Database-Web of Science	
Selection of Search terms: (("online shopping" or "internet banking" or "E-commerce" or "Electronic banking" or "Online banking" or "Paperless banking" or "Sustainable banking"))- (Total result=2835)	
Refinement of search: Total paper 2794 (English language paper included)	Exclude: Computer Science information systems-198 papers. Information science library science-104 papers.
Further Refinement of search: Business and Management Journal=883 papers	Exclude-Technology based paper. Inclusion-Paper more than 10 citations.
Papers are assessed for eligibility: Total paper selected 471	

Data Analysis and Interpretation:

1. Average Article Citations.
2. Most Relevant Sources.
3. Source clustering through Bradford's Law.
4. Author Productivity through Lotka's Law.
5. Most Cited countries.
6. Most Global cited documents.
7. Reference Spectroscopy.
8. Term co-occurrence map.
9. Co-citation analysis.

Chart No.1: Average Article Citations per year

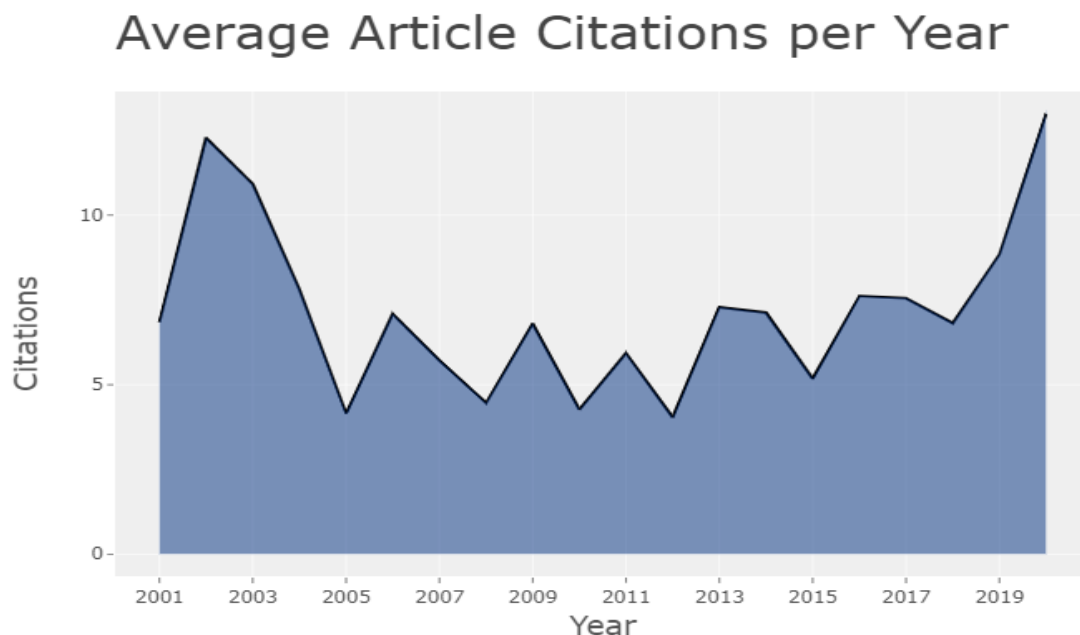


Chart no 1 show that in 2001, the numbers of articles were 17 and the mean of total citation per article was 136.941 and the mean of total citation per year was 6.847. The mean of total citation per article was highest in 2002, i.e., 233.364, and

the mean of total citation per year was 12.282. While the lowest total citation per article was 13.00 in the year 2020.

Chart no.2: Most Relevant Sources

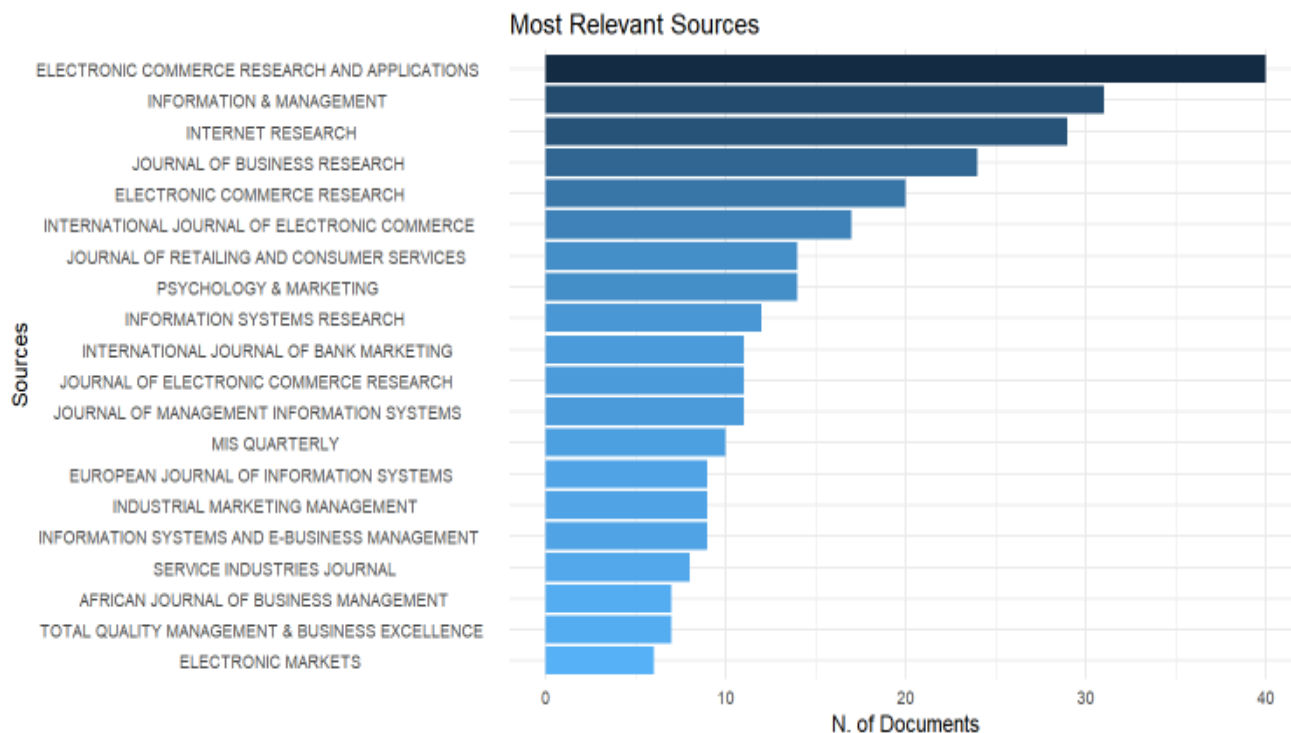


Chart no 2 show that forty articles were related to electronic commerce research and applications, and 31 articles were related to information and management. Twenty-nine articles were related to internet research. Other side the Journal of business research have 24 articles and Electronic markets Journal has only six articles. The study found that most relevant source is Electronic commerce research and applications with h index value 23 and g index value is 40, and total citations are 2282. Information & Management had h index value 23, and g index value is 31 and total citation is 2229. While Internet Research has h index value 23 and g index value is 29, and total citation is 2272 respectively.

Source clustering through Bradford's Law

Table no 2: Name of Journals

Journal Name	Rank	Freq	Cum Freq	Zone
Electronic Commerce Research and Applications	1	40	40	Zone 1
Information & Management	2	31	71	Zone 1
Internet Research	3	29	100	Zone 1
Journal of Business Research	4	24	124	Zone 1
Electronic Commerce Research	5	20	144	Zone 1
International Journal of Electronic Commerce	6	17	161	Zone 1
Journal of Retailing and Consumer Services	7	14	175	Zone 2
Psychology & Marketing	8	14	189	Zone 2
Information Systems Research	9	12	201	Zone 2
International Journal of Bank Marketing	10	11	212	Zone 2
Journal of Electronic Commerce Research	11	11	223	Zone 2
Journal of Management Information Systems	12	11	234	Zone 2
Mis Quarterly	13	10	244	Zone 2
European Journal of Information Systems	14	9	253	Zone 2
Industrial Marketing Management	15	9	262	Zone 2
Information Systems and E-Business Management	16	9	271	Zone 2
Service Industries Journal	17	8	279	Zone 2
African Journal of Business Management	18	7	286	Zone 2
Total Quality Management & Business Excellence	19	7	293	Zone 2
Electronic Markets	20	6	299	Zone 2

In this paper researcher divides the journals into zones through Bradford's Law. Zone 1st or core sector of research represents the most frequently cited journals. This Zone refers to research journals that show the interest of researchers in a particular discipline. Bradford's Law predicts that research journals in zone IInd are higher than the first Zone (Nash-Stewart et al., 2012). If research journals containing the research articles on a specific topic are organized in descending order which have published on the specific subject, then the basic geometric series will generated by successive zones of periodicals containing the same number of articles on the specific subject (Alabi 1979).

Chart no 3: Bradford's Law

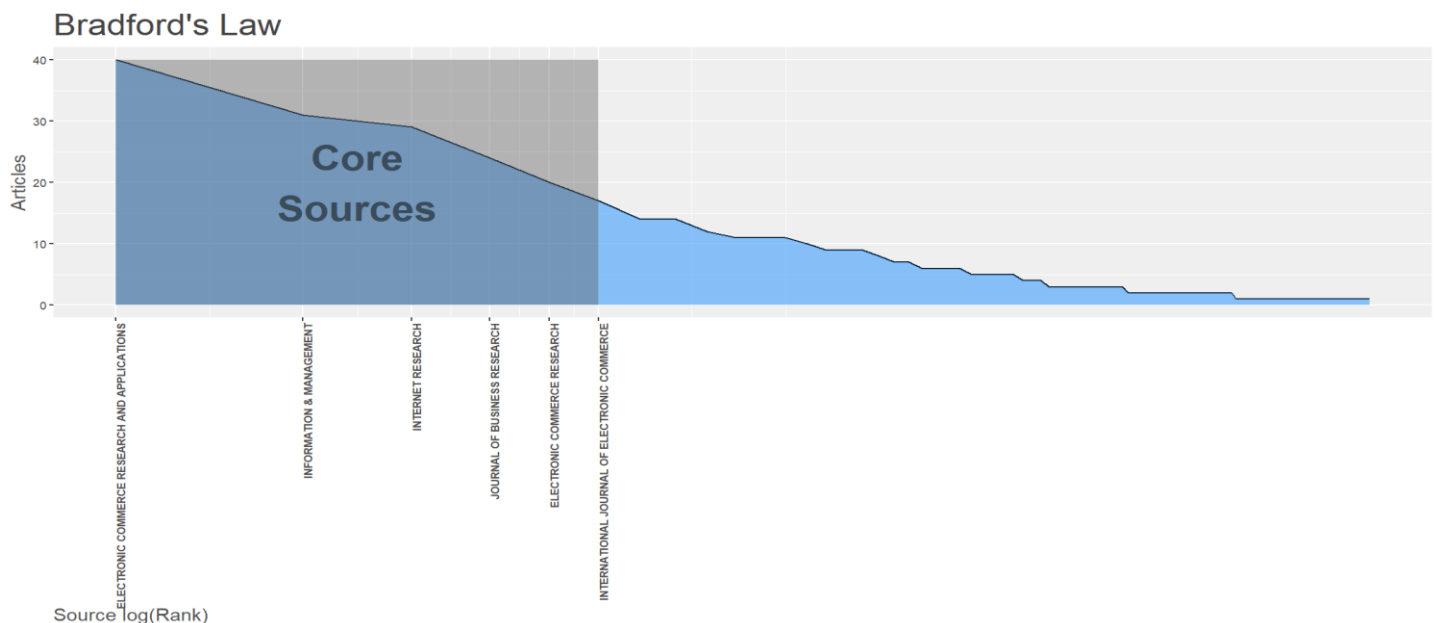


Chart no is divided into two zones. Zone 1st belongs to E-commerce Research and Applications, Information and Management, Internet Research, Journal of Business Research, International Journal of E-commerce, etc. In the zone IInd we include the sources like Journal of Retailing & Consumer services, psychology & marketing, Information systems Research, International Journal of Bank Marketing, Journal of E-commerce Research, Journal of management information systems, MIS Quarterly, European Journal of Information Systems, Industrial Marketing Management, Information Systems & E-Business Management, Service Industries Journal, African Journal of Business Management, Total Quality Management & Business Excellence, Electronic Markets etc.

Author Productivity through Lotka's Law

The assumption of Lotka's Law is that the number of article published by an author is a measure of his/her contribution to a particular field (David & Thomas 2000). This law deals with the frequency of publication of authors in any given subject (Ahmad et al., 2019). Table no 3 shows that at least 1st document in the relevant subject is written by 915 authors whose proportion is 0.876% of total number of authors. Document 2 is written by 104 authors whose proportion is 0.1% of total number of Authors. Document 3 is written by 21 Authors whose proportion is 0.02% of total number of authors. Document 4 is written by 3 Authors on relevant subject whose proportion is 0.003% of total authors. Document 7 is written by only one author whose proportion is 0.001% of total authors.

Table no 3: Author Productivity through Lotka's Law

Documents written	No. of Authors	Proportion of Authors
1	915	0.876
2	104	0.1
3	21	0.02
4	3	0.003
7	1	0.001

Chart no 4: The Frequency Distribution of Scientific Productivity
The Frequency Distribution of Scientific F

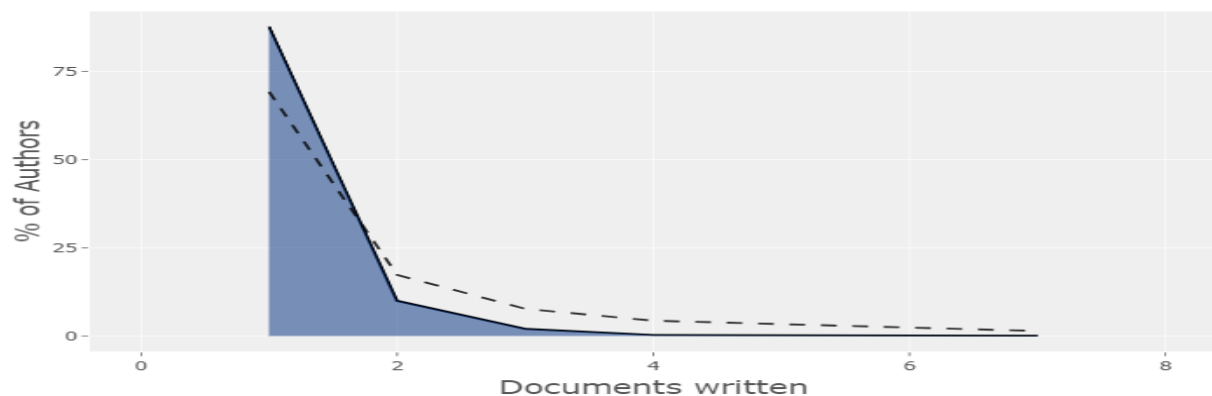
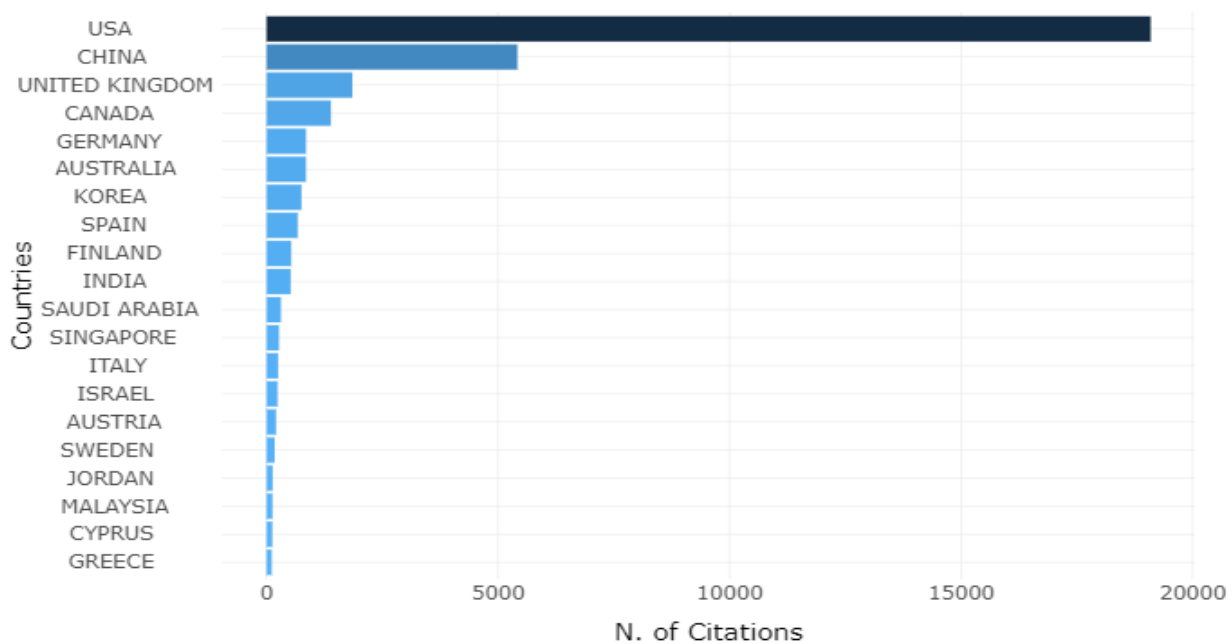


Chart no.5: Most Cited Countries
Most Cited Countries



Study show that USA has total citations 19093 with average of total article citation 45.2. China has total citations 5417 with average of total citations 56.4. United Kingdom has total citation

N. of Citations

1853 with average of total article citation 45.2. While India has total citations 521 with average of total article citation 28.9 during the study time period.

Chart no.6: Most Global Cited Documents

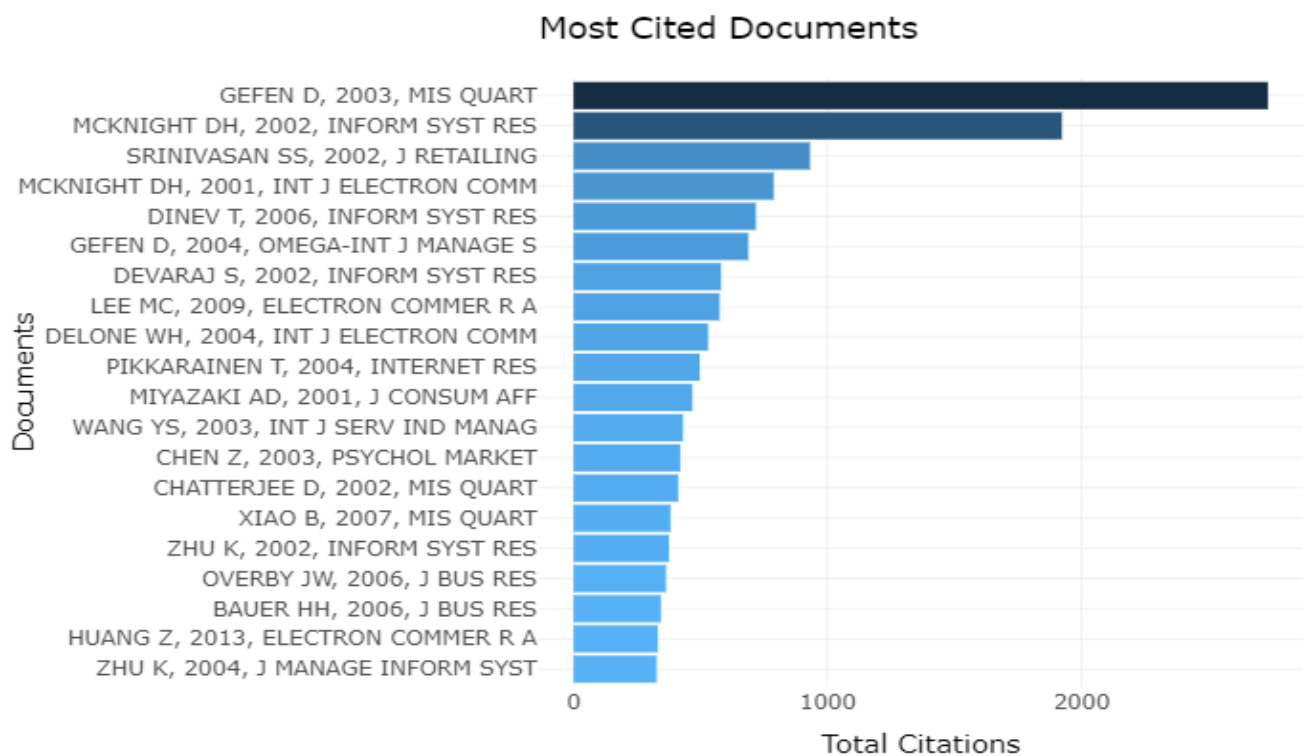


Chart no 6 show that GEFEN D, 2003, MIS QUART has total citations 2734 and total citation per year is 143.895. MCKNIGHT DH, 2002, INFORM SYST RES has total citations 1923 with a total citation per year 96.15. SRINIVASAN SS, 2002, J RETAILING has total citations 931 with a total citation per year 46.55. MCKNIGHT DH, 2001, INT J ELECTRON COMM has total citations 788 with a total citation per year 37.524. DINEV T, 2006, INFORM SYST RES has total citations 718, with a total citation per year 44.875 during the study period.

Reference Spectroscopy:

Reference publication year Spectroscopy was introduced by Marx, Bornmann, Barth, and Leydesdorff (2014). "RPYS is based on the analysis of the frequency with references which are cited in the publications of a specific research field in terms of the publication years of these Cited references.

Chart No7: Reference Publication Year Spectroscopy from 1785 to 2019.

Reference Publication Year Spectroscopy

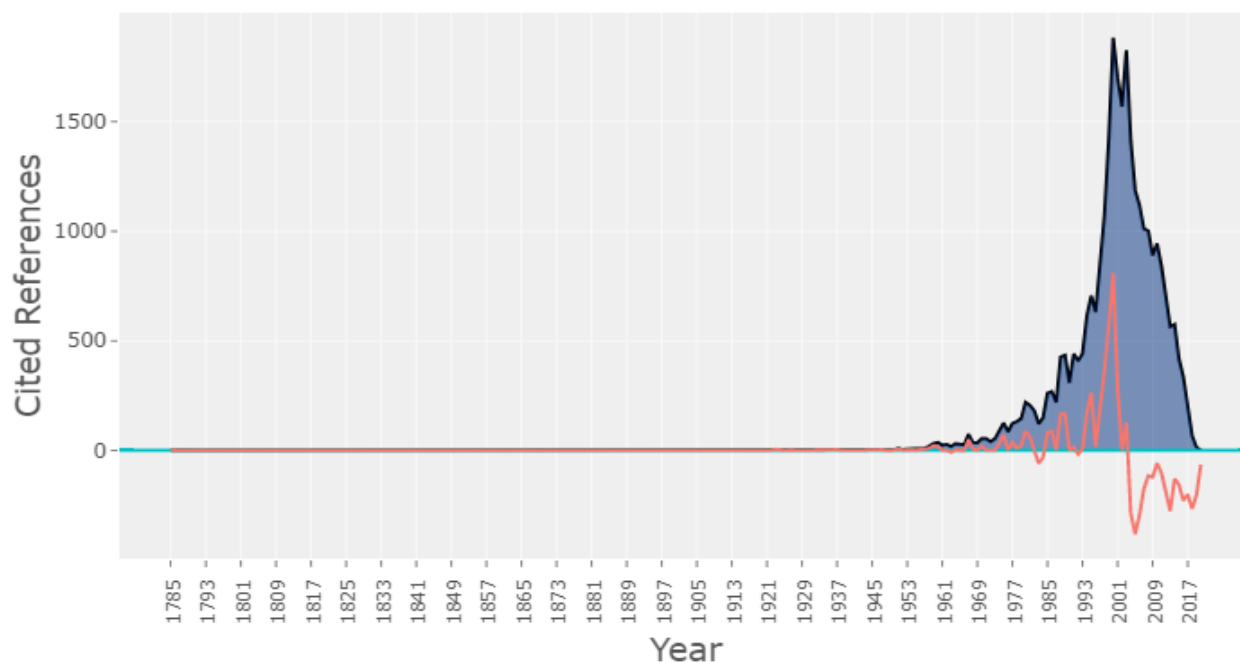


Chart no 7 show that blue line in the graph represents the number of cited references and Red line in the graph shows the deviation of the number of cited references in each year from the median for the number of cited references in the two previous years, the current and the two following years (Thor et al., 2016).

Term Co-occurrence Analysis:

Co-occurrence analysis shows the frequency of key terms which present in studies. We have taken key-terms which have a minimum occurrence of 50. Only 48 meet this threshold out of 8761 total terms in all articles' title and abstract fields. Based on relevant scores of terms total 29 key-terms are selected from VOS Viewer by default.

Table No 4: Term of Co-occurrence Analysis

Term id	Term	Occurences	Relevance Score	Term id	Term	Occurences	Relevance Score
1	Adoption	230	0.6728	16	Internet	98	16
2	Attitude	135	2.1721	17	Internet banking	136	17
3	Benefit	88	0.4081	18	Online shopping	143	18
4	Business	159	2.1361	19	Product	138	19
5	Company	88	2.1147	20	Risk	148	20
6	Consumer	255	0.2074	21	Satisfaction	154	21
7	Country	97	0.3355	22	Strategy	182	22
8	E-commerce	487	1.4738	23	Trust	352	0.5083
9	Ease	57	1.3988	24	Type	67	0.2676
10	Effect	285	0.2966	25	Use	170	0.5075
11	Firm	137	3.1392	26	Usefulness	59	1.0936

					ss		
12	Framework	124	1.3639	27	User	98	1.0956
13	Impact	148	0.3064	28	Value	205	0.1799
14	Information	97	0.6337	29	Website	107	0.522
15	Intention	333	0.8746				

Chart No 8: Key-term of Co-occurrence Analysis

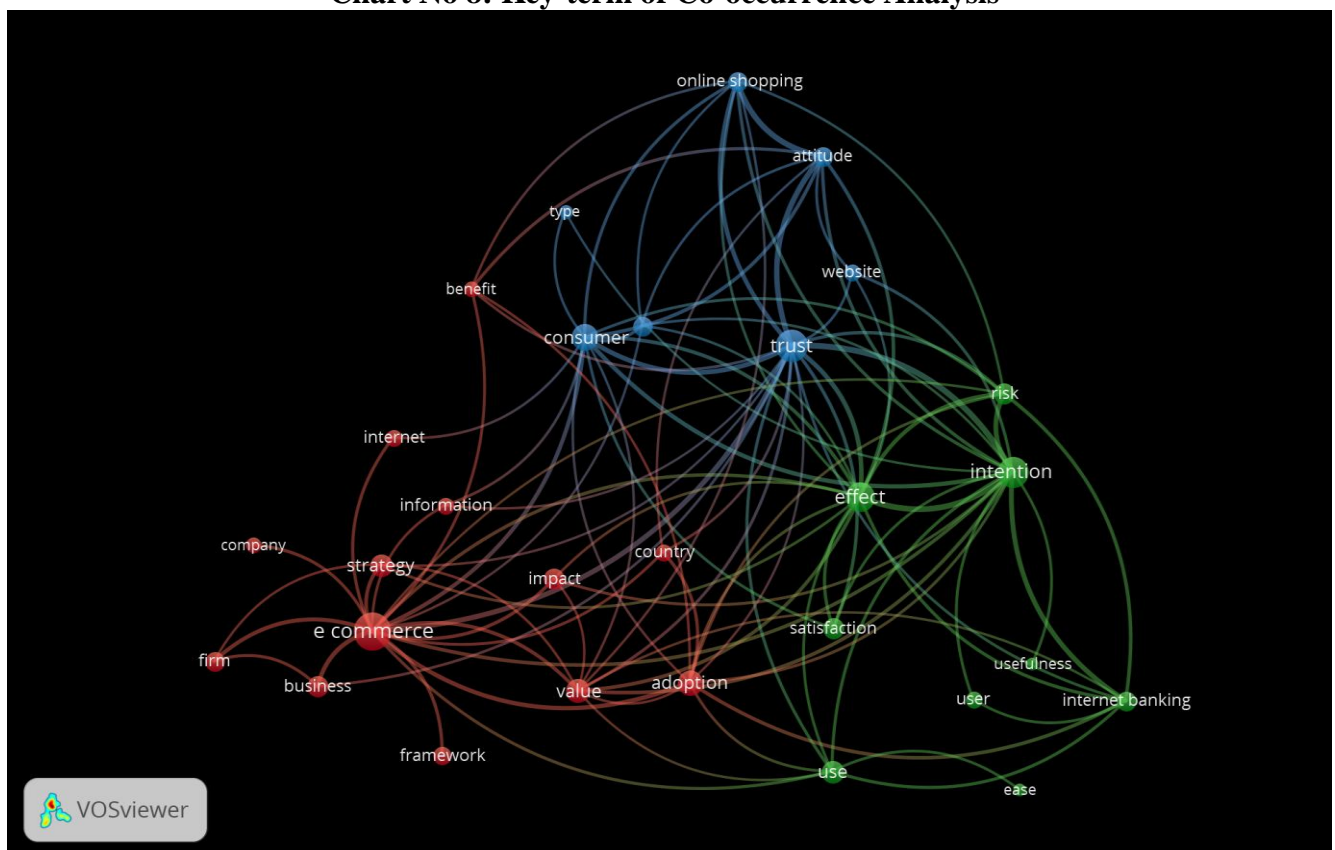


Table no 5 show that mostly key-terms have no correlation. But there is a high correlation between online shopping and attitude. There is also a positive correlation between ease and usefulness.

Co-Citation Analysis:

Co-citation analysis is used to measure the similarity between contents within different documents if there are more than two documents cited together and there is more similarity between these documents (Zupic & Cater 2015). In this study we are taking maximum number of authors three as per document. In the present study out of 817 authors, 5 meet this threshold. Benbasat, Izak has maximum citations while link

strength is zero citations. We found that Ashraf and Thongpapanl have highest link strength in this study.

Chart no 9: Co-Citation Analysis



Discussion:

Present study found that the mean value of total citation was highest in 2002 and lowest in 2020. Study also found that E-commerce research and applications Journal has the highest articles which published in this particular area, followed by Information and Management. Most Global cited documents are found of GEFEN D, 2003, MIS QUART whose total citations is 2734, and total citation per year is 143.895, which shows the relevancy of author documents on particular research. Total 29 key-terms are identified which based on abstracts and keywords in all documents. The frequency of terms in each document is identified, and the correlation of each term is calculated. USA has worked maximum in this area. This research's limitation is that present research can also analyze data based on bibliographic coupling and co-authorship. Future researchers can work on the gap left by this research paper. This research can give the future researcher direction about the growth of research in online business especially E-commerce.

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