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Chapter

Research Trends in Library and Information Science in India during 2011 to 2018

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Abstract

Bibliometric analysis analyzes the research activity based on the doctoral theses that were submitted to the Shodhganga repository from 2011 to 2018 to determine the research trends in library and information science (LIS) in India. The findings demonstrate a shift in academic attention from fundamental LIS subjects to computer applications. Based on the data from Shodhganga, the INDCAT database, Vidyanidhi, and University News, this paper examined 612 PhD theses that were submitted at various universities in India during the course of these eight years.

Keywords: LIS research, research in LIS, PhD theses, research trend, LIS research-India

1. Introduction

The development of LIS as a field of study began with the basic skills of classification, cataloging, indexing, reference, bibliographical search, and professional values. Dr. S.R. Ranganathan played a vital role in the development of library education, libraries, and the library profession in India. Formal LIS education in India is nearly 100 years old.

In this study, an attempt has been made to assess the year-wise and subject-wise growth of new conceptual research in LIS, particularly during the period 2011–2018. This is a bibliometric study, which identifies the recent trend in LIS education in India by analyzing the doctoral thesis uploaded in the Shodhganga repository during the year 2011 to 2018.

Shodhganga is a reservoir of electronic theses, and dissertations are primary sources of research materials that originate from doctoral theses/dissertations submitted to the universities for the award of a PhD degree. It is mandatory to submit an electronic version of theses and dissertations by the researchers in universities to a national repository with an aim to facilitate open access to Indian theses and dissertations to the academic community worldwide.

2. Review of literature

There are so many studies on LIS research trend on the basis of articles published in national and international journals, but it has been found that only few studies have been done on the basis of PhD thesis, which is awarded by Indian universities. Maity and Hatuta's [1] study is an attempt to find out the research trends of library management in LIS and to quantitatively analyze the research activity in India based on doctoral theses that were already awarded in the period 1950–2012. Yadav and Gohain [2] have noted that the trends of LIS education in India under three important phases: genesis of LIS education; LIS education during 1947–2014; and emerging trends in the new millennium in order to cover the important milestones that occurred in Indian LIS education. The literature that informs the study came from a wide range of sources. The paper provides useful current information to LIS professionals, fraternities, researchers, students, and other stakeholders. According to Pandita and Singh [3], this study examines the research growth in the field of LIS at a global level for the period 2004–2013. The key areas analyzed in the study include research growth in LIS at the continental level, world's ten leading LIS research countries, citation analysis Hirsch Index (h-index), etc. The study is supported with empirical findings, for which data were retrieved from the SCI MagoJournal and Country Ranking, based on SCOPUS data source. The study is not exhaustive in nature, as it covers only those articles published in LIS journals indexed with this particular data source. According to Chatha [4], the aim of the study is to analyze the current research trends in LIS through journal articles. The study covers the number of publications, authors per year, cited items, country-wise distribution of articles, state-wise authorships, and current research areas in LIS. According to Dora and Kumar [5], the current study aims to understand the trends in LIS research during 2004–2015 by studying the published literature in Indian LIS journals. Singh [6] in his article study investigates and identifies research trends on LIS on the basis of PhD theses for the past nineteen years at the Department of Library & Information Science (DLIS), Aligarh Muslim University (AMU), India. Mondal and Roy's [7] paper is basically a bibliometric study based on 4993 citations from 53 PhD theses on economics under the University of Burdwan, West Bengal, India.

3. Aim of the study

The aim of the study is to analyze the current research trends in LIS through research theses in India. The bibliometric method is used to categorize the data. The data was gathered from the Shodhganga repository for the time span of 2011–2018. The study shows the current trend in LIS research publication, carried out to determine all the important points helpful for further research. The study covers the number of doctoral theses, the number of universities that are actively involved in research work, year-wise distribution of theses, state-wise contribution to research work, and current research areas in LIS.

All data are collected from Shodhganga repository; then, all the theses are individually analyzed by the titles and keywords and undergo a lot of tool subjects like classification, cataloging, academic library, management, budgeting, bibliometric study, information-seeking behavior, and so on. According to UGC-recommended syllabus, all these tool subjects are distributed under 13 broader subjects those are identified as main topics of research work in the LIS field. These broader subjects are:

1. Library and society
2. Library management
3. Classification/knowledge management
4. Cataloging/resource description
5. Information and communication technology
6. Information source, system, and center
7. Information literacy
8. Information-seeking behavior
9. Information economics and knowledge management
10. Content creation and technical writing
11. Digital library system and digital environment
12. Information system analysis and design
13. Library statistics and informatics

A reservoir of Indian theses is a digital repository of theses and dissertations submitted to Indian universities. It is maintained by INFLIBNET Center, which is an autonomous center of the University Grants Commission (UGC) of India and was initially located at the campus of Gujarat University, Ahmadabad. The repository has a collection of 210,661 theses and 6123 synopses.

It has been observed that “Shodhganga” is an important Indian initiative and will facilitate open access to Indian theses and dissertations to the world academic community. Online availability of electronic theses through centrally maintained digital repositories will not only ensure easy access and archiving of theses but will also help in raising the quality and standard of research.

4. Objectives of this study

The main objectives of this study are:

1. To find out the nature and direction of LIS research during 2011–2018
2. To know the yearly distribution of the subject of LIS research
3. To examine the research trend of LIS in India
4. To verify the diversity of current research in the LIS field

5. Limitation of the study

The study covers research works in LIS at the PhD level, which have been already awarded for doctoral degree by Indian universities. The period of coverage is from 2011 to 2018, a period of 8 years. It has considered only those titles of doctoral theses that appeared in the INFLIBNET-Indcat (<http://incat.inflibnet.ac.in/indcat>). Various universities that have an LIS department and have uploaded theses on INFLIBNET have been searched and data accrued year-wise.

6. Methodology

The main source of data collected is from university news, which periodically lists out the doctoral theses accepted by different universities and also uploaded in the thesis database in India and collected from Shodhganga. Data collected from these databases namely Shodhganga, INDCAT database, Vidyanidhi, University News data, and INFLIBNET (<http://incat.inflibnet.ac.in/indcat>) were searched with the key term “Library,” “Library science”, and “Library and Information science” to retrieve 612 records and were downloaded for the period of 2011 to 2018. All doctoral theses have been listed out and checked manually. After checking, 715 records were retained for the study. The whole work has been divided into three parts. The retrieved title has been grouped according to chronological growth, decade-wise growth, and university-wise distributions in one part. The broad and narrow subject distribution has also been made to find the actual subject trends in other parts. And the third part is state- and zone-wise distribution. The data has been analyzed quantitatively using statistical charts, diagrams, tables, etc.

Data interpretation under topic and year wise: Here, data are analyzed according to tools areas under 13 broad areas.

Table 1 shows 84 research studies, which were completed through the years 2011 to 2018. Out of these, 42.86% research studies were done on academic library, 20.24% on university library, 14.28% on special library, and 1.19% and 4.76% on public library and national library, respectively. Also 4.76% research studies were done on librarianship. So, the result shows that the maximum research studies were done on academic library.

Sl no.	Name of sub topic	2011	2012	2013	2014	2015	2016	2017	2018	Total	(%)
1	Academic Library	2	4	5	2	6	10	7	0	36	42.86
2	University Library	1	3	3	1	2	4	3	0	17	20.24
3	Special library	1	1	0	3	3	2	2	0	12	14.28
4	Public library	0	4	2	1	1	2	3	0	13	15.48
5	National library	0	0	0	0	1	0	0	0	1	1.19
6	Reference service	0	0	0	1	0	0	0	0	1	1.19
7	Librarian-ship	0	0	1	0	1	2	0	0	4	4.76
Total value		4	12	11	8	14	20	15	0	84	100
Percentage (%)		4.76	14.84	13.09	9.52	16.6	23.80	17.85	0	100	

Table 1.
Research on library society.

If we analyze the data according to the year, the highest research studies were done in 2016 (23.80%) and the second highest research in the year 2017 (17.85%). In the area of library and society, rest of the research percentage were 4.76%, 14.84%, 13.09%, 9.52%, and 16.6% in the year 2011, 2012, 2013, 2014, and 2015, respectively.

Figure 1 shows a graphical research on library society according to year.

Table 2 shows 104 research studies, which were completed through the years 2011 to 2018. Out of these, 56.73% research studies were done on management, 10.58% on quality management, 6.73% on organization, 5.73% research on book publishing / e- publishing and infrastructure, 2.88% on preservation and conservation, 4.80% on finance, and only 0.96% on both administration and acquisition. So, the result shows that the maximum research studies were done on management.

If we analyze the data according to year, the highest number of research studies were done in 2012 (18.25%) and second highest research in 2014 (16.35%). In the area of library management, rest of the research percentage were 12.5%, 15.38%, 15.38%, 10.5%, 7.69%, and 3.85% in the year 2011, 2013, 2015, 2016, 2017, and 2018, respectively.

Figure 2 shows research on library organization and administration based on the years.

Table 3 represents 13 (100%) research studies that were completed through the years 2011 to 2018. Out of these, 23.08% (total 3) research studies were done on classification, 69.23% (total 9) on collection development, and 7.69% (total 1) on information processing in the area of research on knowledge organization.

If we analyze the data according to the year, the highest number of research studies were done in 2012 (30.77%, where the total was 4), and the second highest was done in the years 2017 and 2018, where both percentage were same, that is, 15.38%. During the rest of the remaining years, 7.69% research studies were done in the area of knowledge management.

Figure 3 shows research on classification/knowledge organization based on the years.

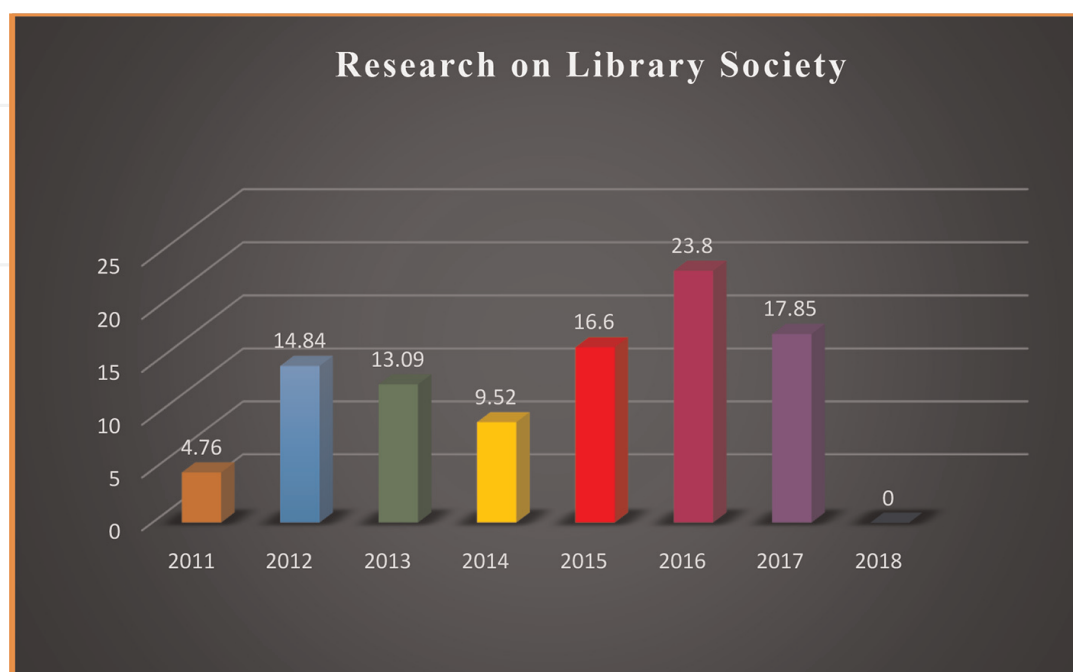


Figure 1.
Research on library society according to years.

Sl no.	Name of sub topic	2011	2012	2013	2014	2015	2016	2017	2018	Total	Percentage (%)
1	Management	9	9	10	9	11	8	2	1	59	56.73
2	Organization	1	1	1	2	1	0	0	1	7	6.73
3	Acquisition	0	1	0	0	0	0	0	0	1	0.96
4	Finance	0	3	2	0	0	0	0	0	5	4.80
5	Administration	0	1	0	0	0	0	0	0	1	0.96
6	Book publishing / e- publishing etc	1	1	1	3	0	0	0	0	6	5.78
7	Infrastructure	1	1	0	0	1	0	3	0	6	5.78
8	Preservation & conservation	1	0	1	0	1	0	0	0	3	2.88
9	Quality control	0	1	0	1	0	2	0	1	5	4.80
10	Quality Management	0	1	1	2	2	1	3	1	11	10.58
Total value		13	19	16	17	16	11	8	4	104	100
Percentage (%)		12.5	18.27	15.38	16.35	15.38	10.58	7.69	3.85	100	

Table 2.
Research on library management.

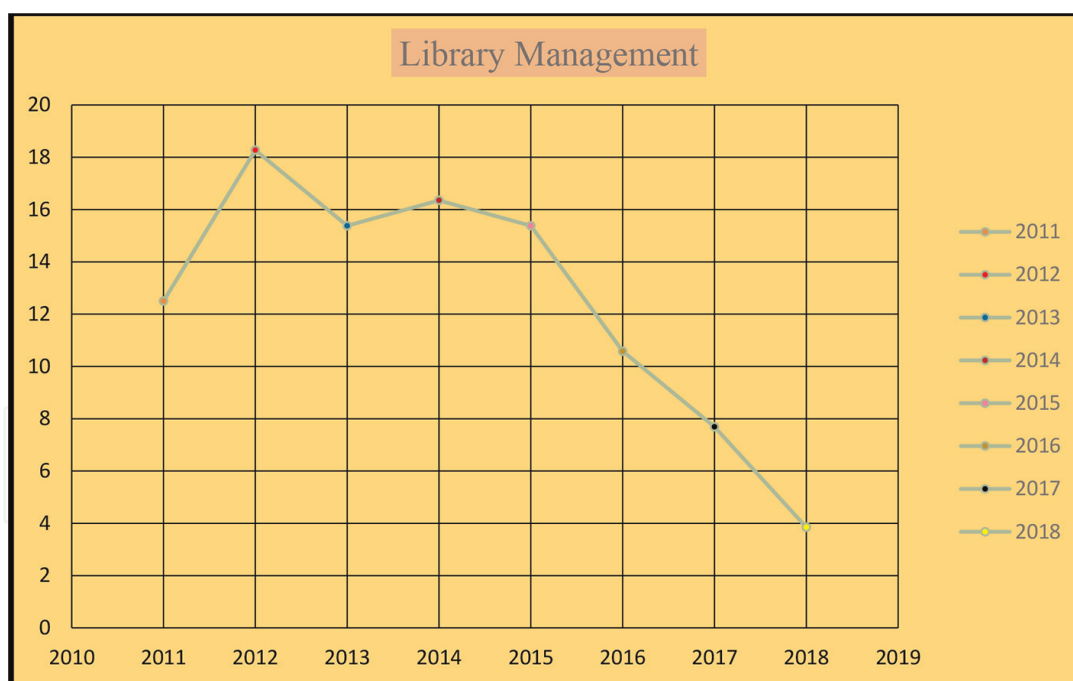


Figure 2.
Research on library organization & administration based on the years.

Table 4 shows that total 19 research studies were done on cataloging/resource description. Out of this, 26.31% research studies were completed on cataloging; 21.05% research studies were done on bibliography and indexing; and 15% research studies were completed on manuscript and control vocabulary. So, maximum research studies were done on cataloging.

Sl no.	Name of sub topic	2011	2012	2013	2014	2015	2016	2017	2018	Total	Percentage (%)
1	Classification	0	1	1	0	0	0	0	1	3	23.08
2	Collection development	1	2	1	1	1	1	1	1	9	69.23
3	Information Processing	0	1	0	0	0	0	0	0	1	7.69
Total value		1	4	2	1	1	1	1	2	13	100
Percentage (%)		7.69	30.77	15.38	7.69	7.69	7.69	7.69	15.38	100	

Table 3.
 Research on classification/knowledge organization.

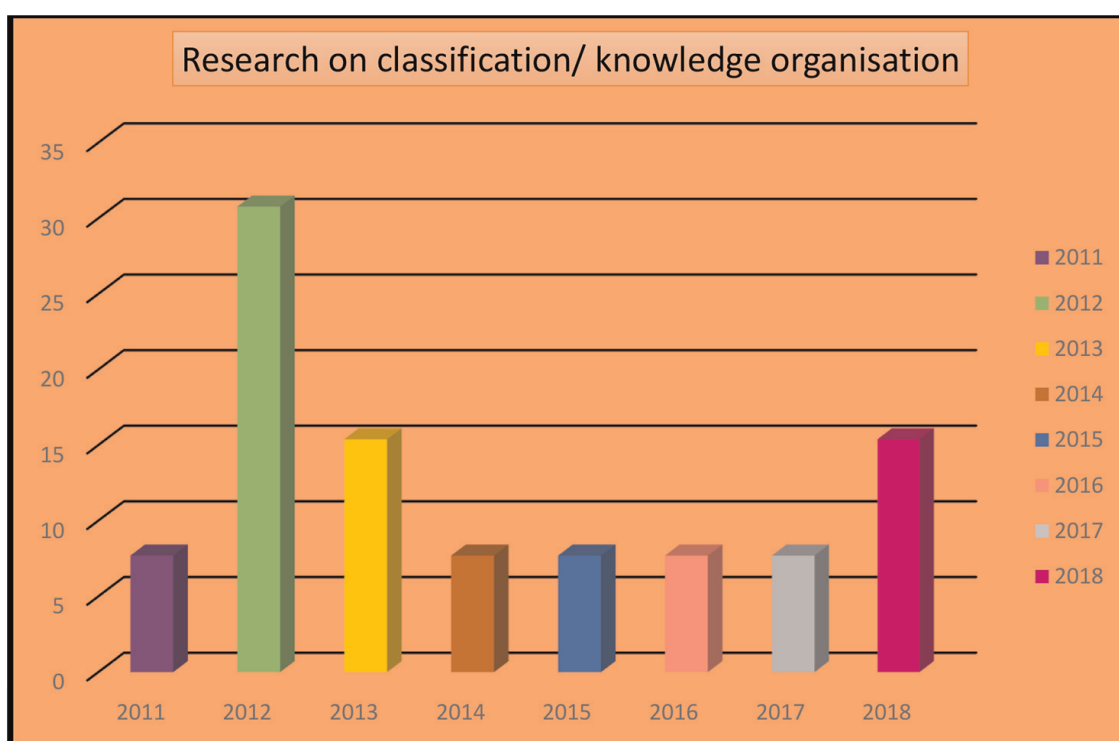


Figure 3.
 Research on classification/knowledge organization based on the years.

On the basis of years (2011 to 2018), the analysis of data represents that 26.31% research studies were done in the year 2011, 21.05% in the year 2015 and 2018, 10.53% and 5.23% research studies were done in 2012 and 2016, respectively, in the research area of cataloging/resource description.

Figure 4 shows research on cataloging/resource description according to the year.

Table 5 shows 179 research studies, which were completed through the years 2011 to 2018. Out of these, 40.78% research studies were done on information technology, 12.85% on ICT, 11.73% on network, 11.17% on software, and 6.14% both internet and e-journals. Only 4.47%, 5.59%, and 1.12% research studies were done on database, automation, and electronic/print media, respectively. So, the result shows that the maximum research studies were done on information technology.

Sl no.	Name of sub topic	2011	2012	2013	2014	2015	2016	2017	2018	Total	Percentage (%)
1	Cataloging	0	0	3	0	2	0	0	0	5	26.31
2	Bibliography	3	0	0	1	0	0	0	0	4	21.05
3	Manuscript	0	0	0	0	0	0	0	3	3	15.79
4	Indexing	2	1	0	0	1	0	0	0	4	21.05
5	Control vocabulary	0	1	0	0	1	1	0	0	3	15.79
Total value		5	2	3	1	4	1	0	3	19	100
Percentage (%)		26.31	10.53	15.79	5.23	21.05	5.23	0	15.79	100	

Table 4.
Research on cataloging/research on resource description.

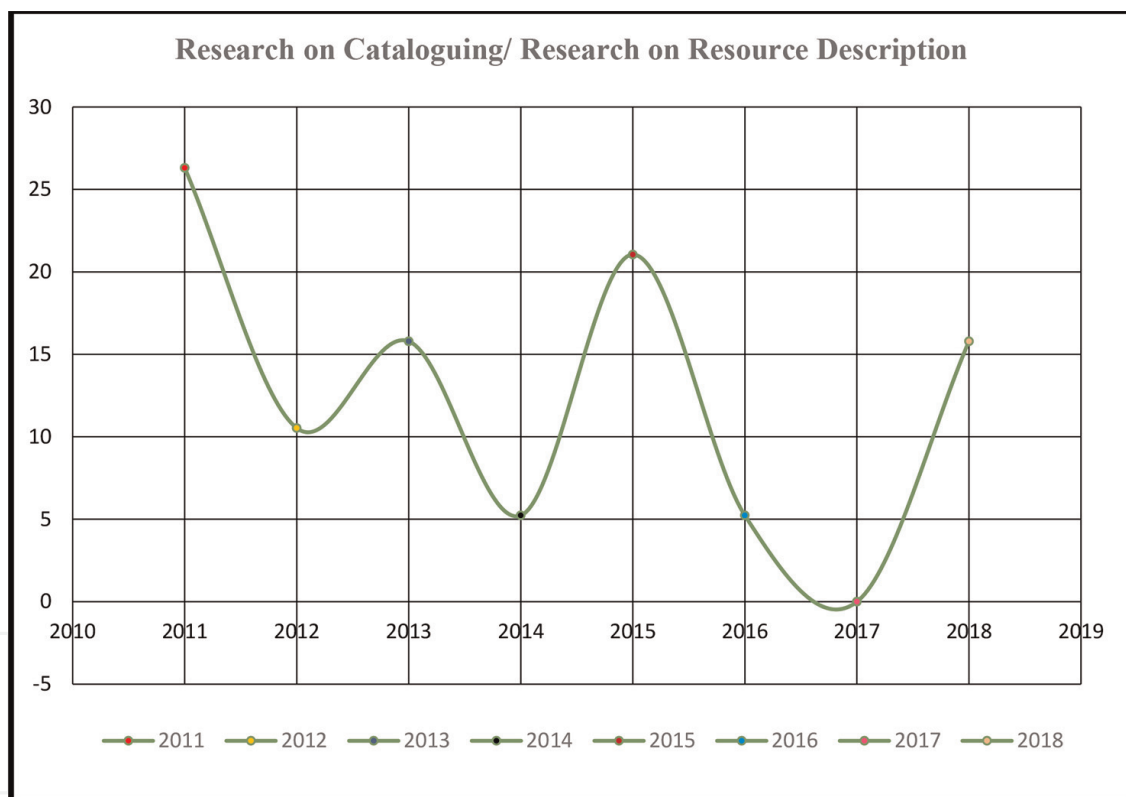


Figure 4.
Research on cataloging/resource description according to the year.

If we analyze the data according to the year, the highest number of research studies were done in 2012 (19.55%) and second highest research in 2013 (18.99%). In the area of information communication technology, rest of the research percentage were 9.50%, 11.17%, 13.96%, 11.17%, 11.73%, and 3.91% in the year 2011, 2014, 2015, 2016, 2017, and 2018, respectively.

Figure 5 shows research on information communication technology based on the years.

Table 6 reflects that total 29 (100%) research studies were done on information source, system, and center. Out of this, 13.79% (total 4) research studies were done on

Sl no.	Name of sub topic	2011	2012	2013	2014	2015	2016	2017	2018	Total	Percentage (%)
1	Database	0	4	1	1	1	1	0	0	8	4.47
2	Automation	2	3	1	3	1	0	0	0	10	5.59
3	Network	2	2	3	4	3	6	0	1	21	11.73
4	Software	7	3	4	1	1	1	3	0	20	11.17
5	Information Technology	3	16	11	7	13	9	10	4	73	40.78
6	ICT	0	5	6	2	3	0	6	1	23	12.85
7	Internet based	3	0	4	1	0	2	1	0	11	6.14
8	Electronic/ print media	0	1	0	0	1	0	0	0	2	1.12
9	E journal	0	1	4	1	2	1	1	1	11	6.14
Total value		17	35	34	20	25	20	21	7	179	100
Percentage (%)		9.50	19.55	18.99	11.17	13.96	11.17	11.73	3.91	100	

Table 5.
 Research on information communication technology.

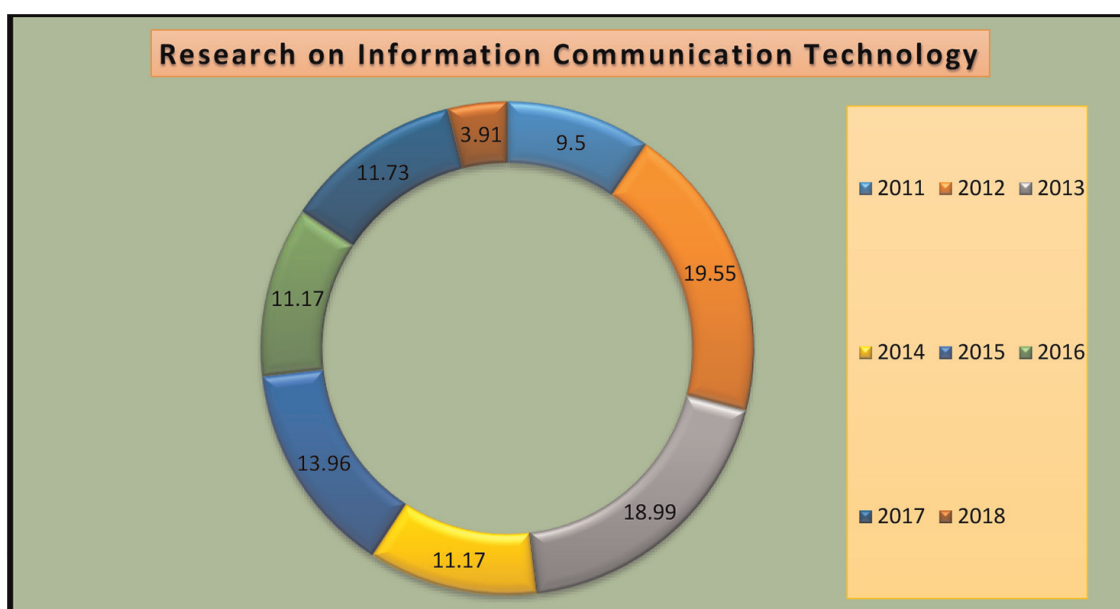


Figure 5.
 Research on information communication technology based on the years.

information system, and 86.21% (total 25) research studies were done on information service/source.

Yearly distribution shows that 24.14% (7) doctoral theses were completed in the year 2015, which was the highest number of research on information source, system, and center during the years 2011 to 2018. The second highest was 20.69% (6) in the year 2012, whereas in the year 2018, no research was done on this topic. Rest of the research percentages with years were 13.79% (4) in 2011 and 2017, 6.9% (2) in 2013, and 10.34% (3) in 2014 and 2016.

Sl no.	Name of sub topic	2011	2012	2013	2014	2015	2016	2017	2018	Total	Percentage (%)
1	Information system	1	1	0	1	1	0	0	0	4	13.79
2	Information service/ source	3	5	2	2	6	3	4	0	25	86.21
Total value		4	6	2	3	7	3	4	0	29	100
Percentage (%)		13.79	20.69	6.9	10.34	24.14	10.34	13.79	0	100	

Table 6. Research on information source, system, and services.

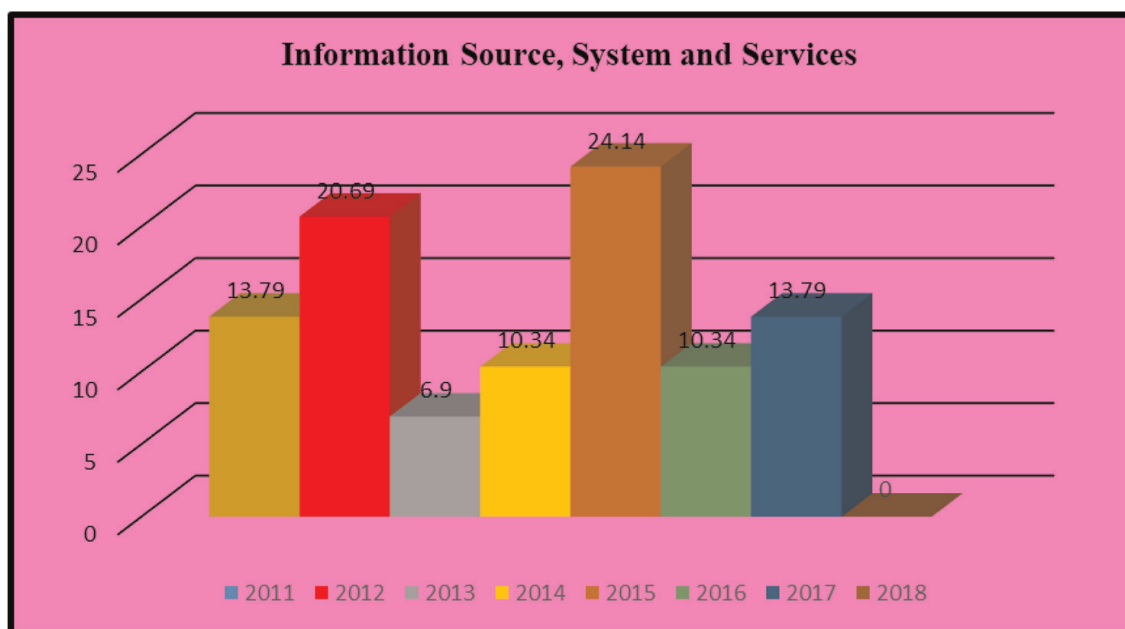


Figure 6. Research on information source, system, and services according to the year.

Figure 6 shows research on information source, system, and services according to the year.

Table 7 shows that the total number of research on library classification in the year 2011–2018 was (21) 100%.

If we study according to the year, we can see the highest research studies were done in the year 2014 and 2017, where the percentage was same (23.81%; total 5 out of 21), and the second highest was in 2016 (19.05%; total 4), and 2015 had 14.28% (3)

Sl no.	Name of sub topic	2011	2012	2013	2014	2015	2016	2017	2018	Total	Percentage (%)
1	Information Literacy	1	1	1	5	3	4	5	1	21	100
Total value		1	1	1	5	3	4	5	1	21	100
Percentage (%)		4.76	4.76	4.76	23.81	14.28	19.05	23.81	4.76	100	

Table 7. Research on information literacy.

research studies. Rest of the years were 2011, 2012, 2013, and 2018, which had done the same number of research studies on this topic, where the percentage were only 4.76 (total 1 out of 21).

Figure 7 shows research on information literacy based on the years.

Table 8 shows that total 86 research studies were done on seeking behavior and user approach in the years 2011–2018, where 41.86% were on information-seeking behavior and 47.67% were on user survey and user study. Only 10.47% research studies were done on reading habit. So, maximum research studies were done on user survey and user study.

If we study according to the year, we can see that the highest research studies were done in the year 2015, where the percentage was the same (17.44%; total 15 out of 86), second highest was in 2012 (16.28%), and 2013 and 2017 both had equal percentage, that is, 15.12% (total 12). Rest of the years were 2011, 2014, 2016, and 2018, which had done 10.46%, 13.95%, 9.30%, and 2.32%, respectively.

Figure 8 shows research on information-seeking behavior and user Approach.

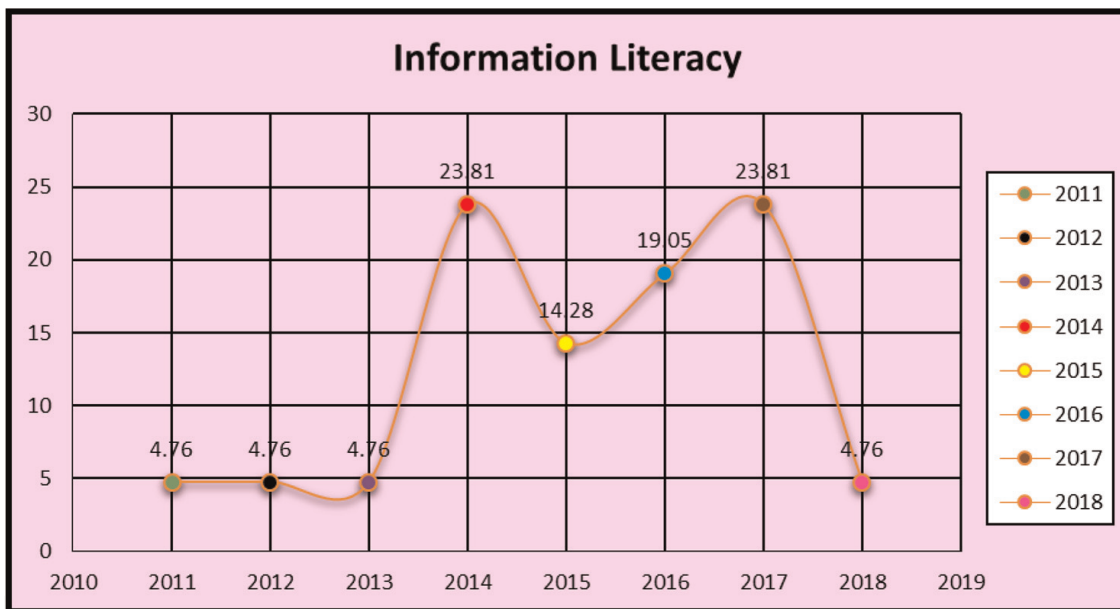


Figure 7.
 Research on information literacy based on the years.

Sl no.	Name of sub topic	2011	2012	2013	2014	2015	2016	2017	2018	Total	Percentage (%)
1	Information seeking behavior	5	7	5	7	5	3	3	1	36	41.86
2	User survey and User study	2	7	7	4	9	5	6	1	41	47.67
3	Reading habit	2	0	1	1	1	0	4	0	9	10.47
Total value		9	14	13	12	15	8	13	2	86	100
Percentage (%)		10.46	16.28	15.12	13.95	17.44	9.30	15.12	2.32	100	

Table 8.
 Research on information-seeking behavior and user approach.

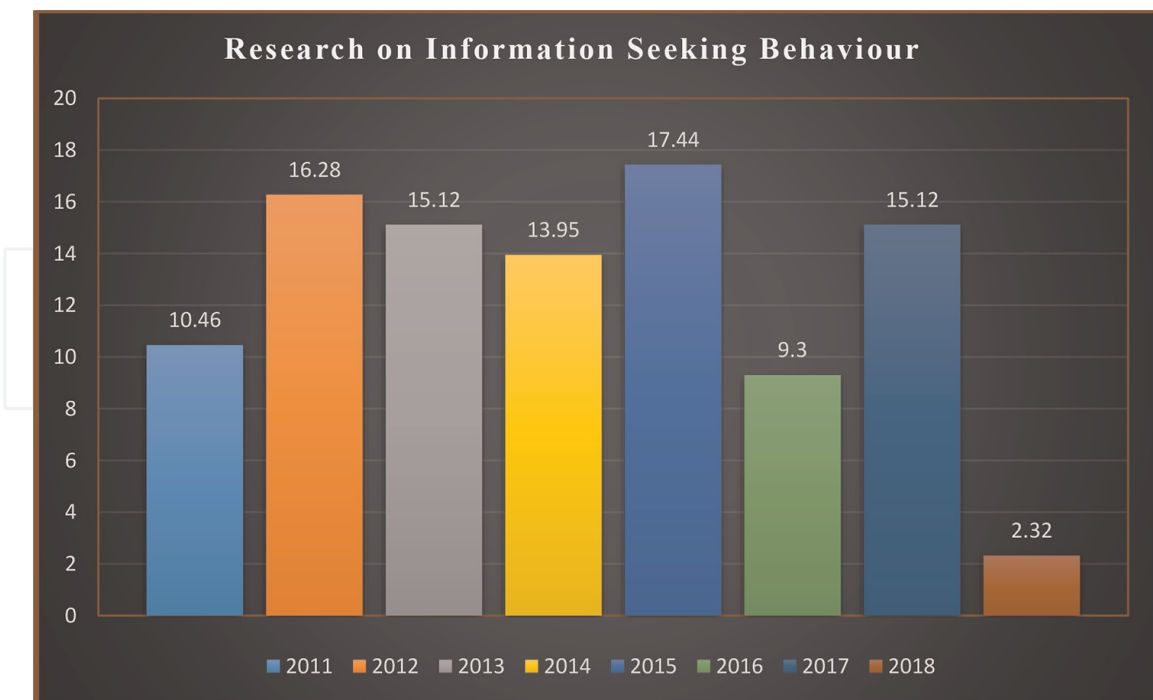


Figure 8.
Research on information-seeking behavior and user approach.

Table 9 shows that the total number of research studies done on information economics and knowledge management was 37 (100%). Out of this, 64.86% research studies were completed on information resource, where the total was 24, which is the highest among all, 16.21% research studies were done on resource sharing, where the total was 6, and remaining 5.40% (2), 10.81% (4), and 2.70% (1) research studies were done on marketing, web resource, and information dissemination, respectively.

Yearly distribution of library management research theses from 2011 to 2018 shows that among the 37 (100%) theses, the highest number of research studies were done in the year 2014; percentage is 29.7 (14). Second highest research studies were done in the years 2015 and 2017; percentage is 16.21 (6).

Figure 9 shows research on information economics and knowledge management based on the years.

Sl no.	Name of sub topic	2011	2012	2013	2014	2015	2016	2017	2018	Total	Percentage (%)
1	Marketing	1	1	0	0	0	0	0	0	2	5.40
2	Information resource	1	0	2	8	4	3	5	1	24	64.86
3	Web Resource	0	0	1	2	0	1	0	0	4	10.81
4	Information dissemination	0	0	0	0	1	0	0	0	1	2.70
5	Resource sharing	0	1	1	1	1	1	1	0	6	16.21
Total value		2	2	4	11	6	5	6	1	37	100
Percentage (%)		5.40	5.40	10.81	29.73	16.21	13.51	16.21	2.70	100	

Table 9.
Research on information economics and knowledge management.

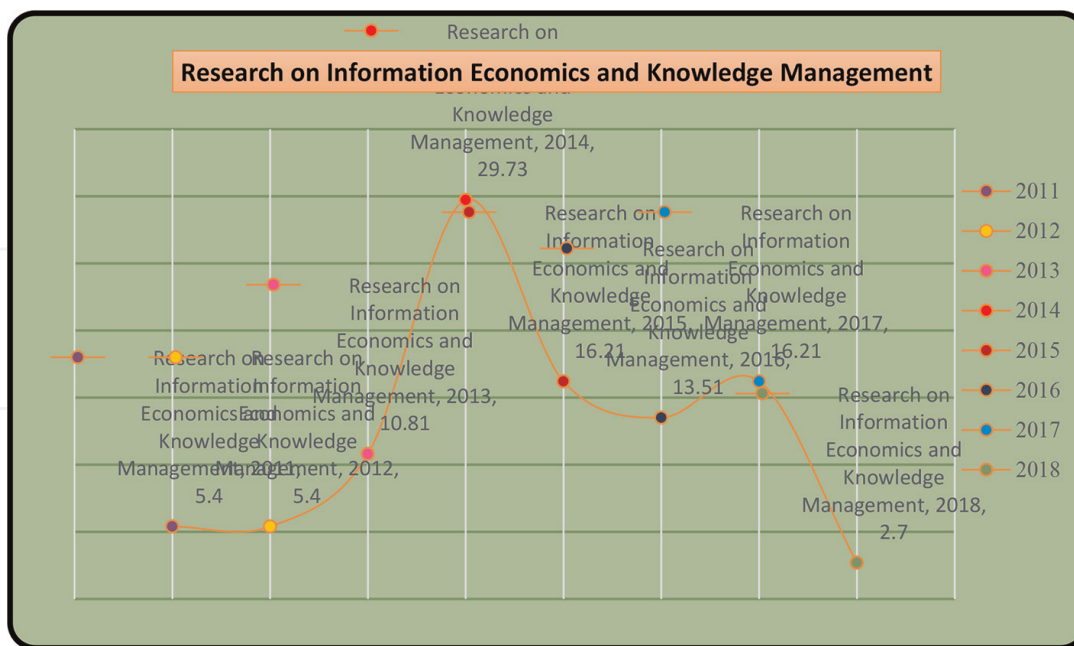


Figure 9.
 Research on information economics and knowledge management based on the years.

Table 10 describes that total 10 (100%) research studies were completed on content creation and technical writing. Out of this, 50% research studies were done on open access, 30% research studies on e-learning, and 20% research studies on content management.

Yearly distribution shows that the highest research studies were done in the year 2015, which is 40%, and remaining 20%, 30%, and 10% research studies were completed in the years 2013, 2014, and 2016, respectively. 2011, 2012, 2017, and 2018 had no research in content creation and technical writing.

Figure 10 shows research on content creation and technical writing based on the years.

Table 11 shows 58 (100%) research studies that were completed on digital library system and digital environment. Out of this, 41.38% (24) research studies were done on the digital library system, which had the highest score; the second highest research score 34.48% (20) was on e-resource, 13.79% (8) on e-journal, and 5.17% (3) research studies were completed on both metadata harvesting and digital repository. So, the result shows that the maximum research studies were done on the digital library system.

Sl no.	Name of sub topic	2011	2012	2013	2014	2015	2016	2017	2018	Total	Percentage (%)
1	Open access	0	0	1	1	3	0	0	0	5	50
2	E-learning	0	0	0	1	1	1	0	0	3	30
3	Content management	0	0	1	1	0	0	0	0	2	20
Total value		0	0	2	3	4	1	0	0	10	100
Percentage (%)		0	0	20	30	40	10	0	0	100	

Table 10.
 Research on content creation and technical writing.

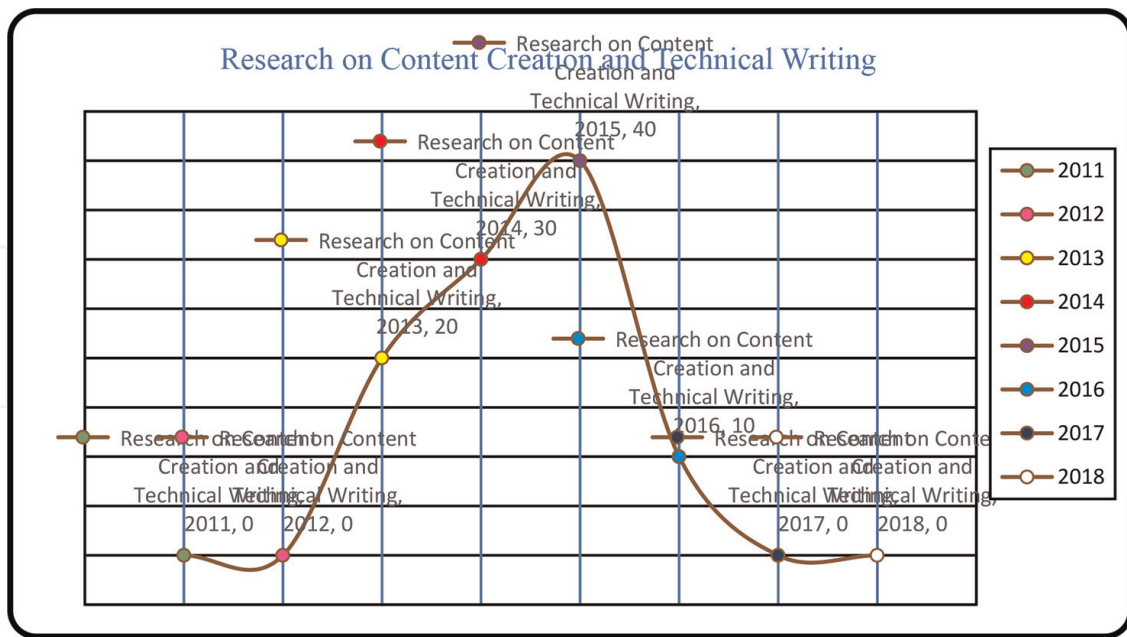


Figure 10. Research on content creation and technical writing based on the years.

Sl no.	Name of sub topic	2011	2012	2013	2014	2015	2016	2017	2018	Total	Percentage (%)
1	Digital library system & Digital Environment	3	4	1	2	4	4	3	3	24	41.38
2	Metadata harvesting	2	1	0	0	0	0	0	0	3	5.17
3	Digital repository	0	1	1	0	0	0	1	0	3	5.17
4	E- resource	1	3	0	1	6	0	8	1	20	34.48
5	E- journal	0	1	4	1	2	0	0	0	8	13.79
Total value		6	10	6	4	12	4	12	4	58	100
Percentage (%)		10.34	17.24	10.34	6.89	20.69	6.89	20.69	6.89	100	

Table 11. Research on digital library system and digital environment.

If we analyze the data according to the year, highest research studies were done in 2015 and 2017, both (6.89%). In the area of digital library system and digital environment, rest of the research percentage were 17.24% in 2012, 10.34% in both 2011 and 2013, 6.89% in 2014, 2016, and 2018.

Figure 11 shows research on digital library system and digital environment based on the years.

Table 12 shows that total 40 (100%) research studies were completed on information system analysis and design. Out of this, highest research studies were done on library professional (40%). Second highest was on quality management (30%) and rest of 15% (6), 12.5% (5), and 2.5% (1) research studies were completed on consortia, performance evaluation, and Thesaurus construction, respectively.

Yearly distribution shows that highest research studies were in the year 2012 and 2013, the score was same 17.5% (7); 2014 and 2015 also had done same percentages of

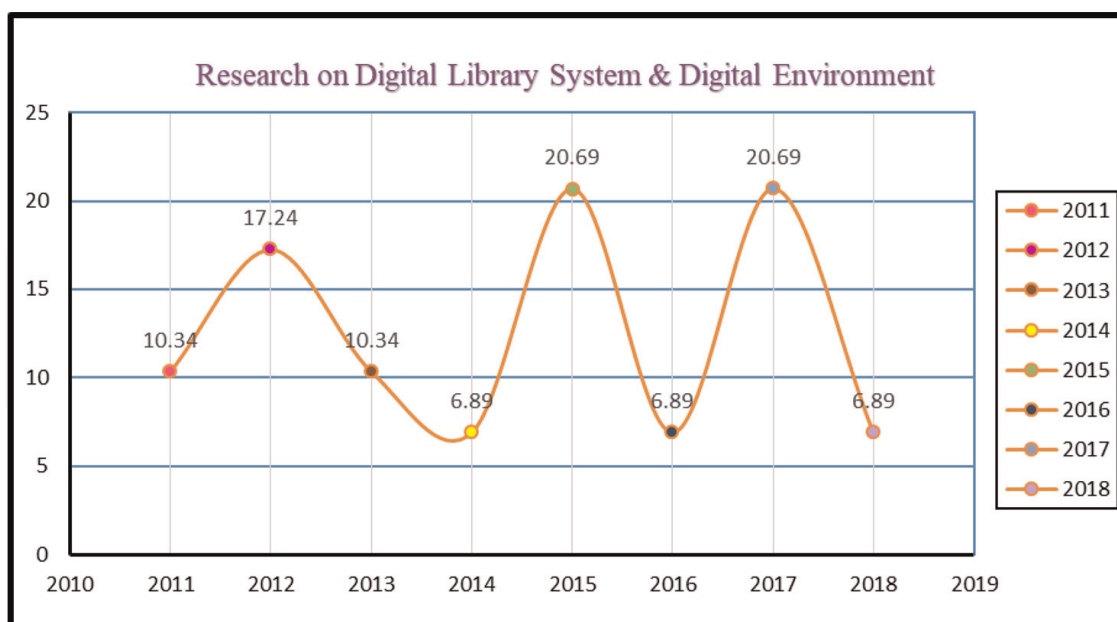


Figure 11. Research on digital library system and digital environment based on years.

Sl no.	Name of sub topic	2011	2012	2013	2014	2015	2016	2017	2018	Total	Percentage (%)
1	Quality Management	1	1	1	2	2	1	3	1	12	30
2	Consortia	0	1	3	0	1	0	1	0	6	15
3	Performance evaluation	0	1	2	0	1	0	1	0	5	12.5
4	Library Professional	1	4	1	3	1	4	1	1	16	40
5	Thesaurus construction	0	0	0	0	0	1	0	0	1	2.5
Total value		2	7	7	5	5	6	6	2	40	100
Percentage (%)		5	17.5	17.5	12.5	12.5	15	15	5	100	

Table 12. Research on information system analysis and design.

research studies, which was 12.5 (5). 2016 and 2017 also had same 15% (6), and 5% (2) research studies were done in the year 2011 and 2018.

Figure 12 shows research on information system analysis and design according to years.

Table 13 reflects that total 86 (100%) number of research studies were done on library statistic and informatics. Out of this, 61.17% (total 52) research studies were done on scientometric, which got highest number among these, and second highest research was 16.47% (total 14) done on citation analysis. Rest of 7.05% (total 6), 2.35% (total 2), 5.88% (total 5), and 8.14% (total 7) research studies were completed on bibliometric, webometric, hypotheses testing, and content analysis, respectively.

Yearly distribution shows that 20% (total 17) doctoral thesis were completed in the year 2014, which was the highest number of research on library statistic and informatics during the year 2011 to 2018. Second highest was 17.47% (total 17) in the year

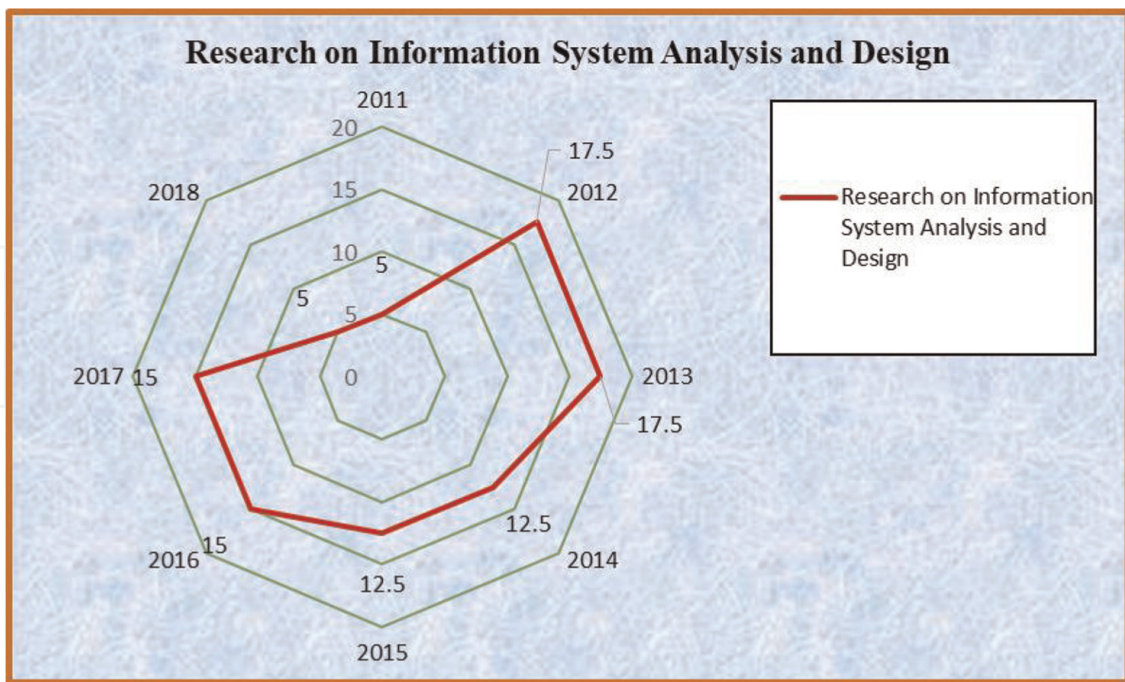


Figure 12.
Research on information system analysis and design according to years.

Sl no.	Name of sub topic	2011	2012	2013	2014	2015	2016	2017	2018	Total	Percentage (%)
1	Bibliometrics	2	1	0	1	0	1	1	0	6	7.05
2	Citation analysis	1	1	1	3	3	1	4	0	14	16.47
3	Webometrics	1	0	0	0	0	1	0	0	2	2.35
4	Hypothesis testing	0	2	1	2	0	0	0	0	5	5.88
5	Scientometric	4	8	3	9	14	9	4	1	52	61.17
6	Content analysis	0	0	1	0	0	2	3	1	7	8.14
Total value		8	12	6	15	17	14	12	2	86	100
Percentage (%)		9.41	14.11	7.05	17.64	20	16.47	13.95	2.35	100	

Table 13.
Research on library statistics and informatics.

2014. Rest of the research percentages with years were 9.41% (8) in 2011, 14.11% (12) in 2012, 7.05% (6) in 2013, 16.47% (14) in 2016, 13.95% (12) in 2017, and 2.35% (2) in the year 2018, respectively.

Data analysis and interpretation under broad subject with years: Here, data is represented and analyzed according to 13 broad subjects included with yearly distributions.

Figure 13 shows research on library statistic and informatics based on the year.

This table (**Table 14**) represents the research studies under broad subject. Here, we can see that the highest research studies were done under the subject “Information Communication Technology”, the total number of research 179 (25.03%) out of 715 (100%). Second highest research studies were done in “Library Management”

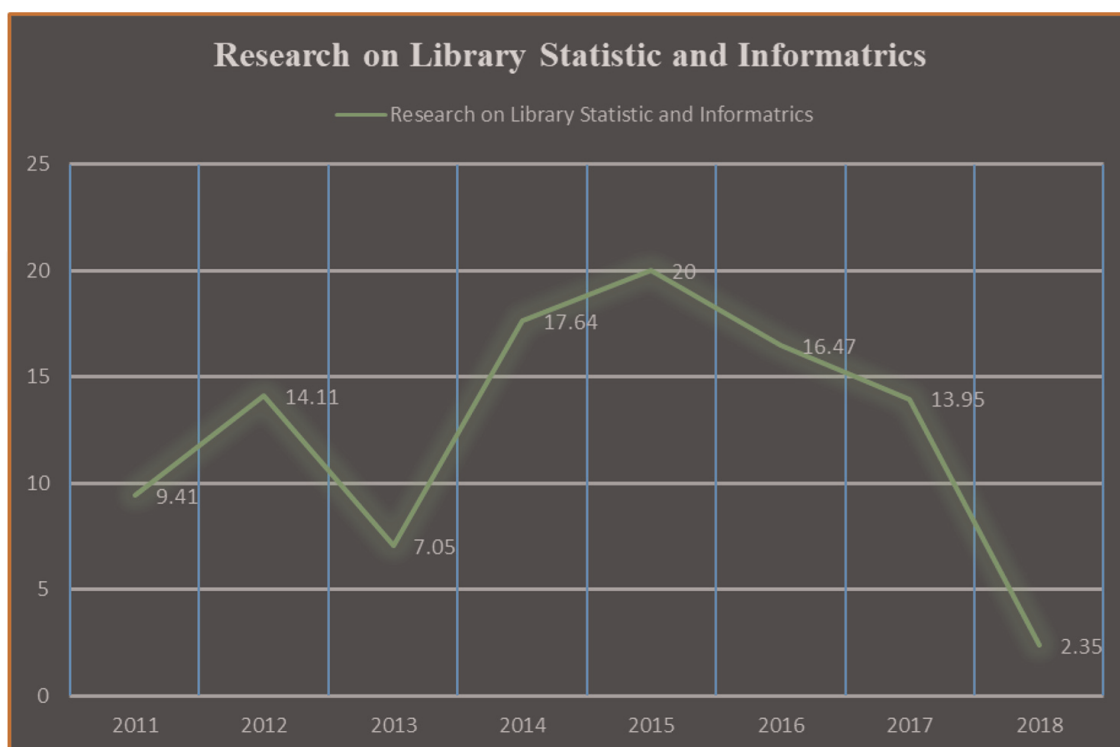


Figure 13.
 Research on library statistics and informatics based on the year.

SL. No	Name of sub topic	2011	2012	2013	2014	2015	2016	2017	2018	Total	Percentage (%)
1	Library and Society	4	12	11	8	14	20	15	0	84	11.75
2	Library Management	13	19	16	17	16	11	8	4	104	14.54
3	Research on Classification/ Knowledge Organization	1	4	2	1	1	1	1	2	13	1.82
4	Cataloging/ Resource description	5	2	3	1	4	1	0	3	19	2.66
5	Information Communication Technology	17	35	34	20	25	20	21	7	179	25.03
6	Information Source, System and Services	4	6	2	3	7	3	4	0	29	4.06
7	Information Literacy	1	1	1	5	3	4	5	1	21	2.94
8	Information Seeking Behavior	5	7	5	7	5	3	3	1	36	5.03
9	Information Economics and Knowledge Management	2	2	4	11	6	5	6	1	37	5.17
10	Content Creation and Technical Writing	0	0	2	3	4	1	0	0	10	1.4

SL. No	Name of sub topic	2011	2012	2013	2014	2015	2016	2017	2018	Total	Percentage (%)
11	Digital Library System & Digital Environment	6	10	6	4	12	4	12	4	58	8.11
12	Information System Analysis and Design	2	7	7	5	5	6	6	2	40	5.59
13	Library Statistic and Informatics	8	12	6	15	17	14	11	2	85	11.89
Total value		68	117	99	100	119	93	92	27	715	100
Percentage (%)		9.51	16.36	13.85	13.99	16.64	13	12.88	3.77	100	

Table 14.
Data analysis under broad subject.

(14.54%) total were 104, where 85 (11.89%) research studies were on “Library Statistic and Informatics”. “Library and Society” accrue 84 (11.75%) research studies. Next, “Digital Library System & Digital Environment”, “Information System Analysis and Design”, and “Information Economics and Knowledge Management” completed 58 (8.11%), 40 (5.59%), and 37 (15.17%) research studies, respectively. Rest of the subjects are “Research on Classification/ Knowledge”, “Organization Cataloging/ Resource description”, “Information Source”, “System and Services”, “Information Literacy”, and “Information Seeking Behavior” completed 1 to 36 (6% to <2%) research studies in LIS field during 2011 to 2018.

According to years, the maximum number of research studies were in the years 2015 and 2012; the total were 119 (16.64%) and 117 (16.36%), respectively, where medium number of research studies were in the years 2014–100 (13.99%), 2013–2099 (13.85%), 2016–2093 (13%), 2017–2092 (12.88%), and 2011–2068 (9.51%), where lowest number of research studies were in the year 2018–2027 (3.77%) on the basis of theses uploaded in Shodhganga.

Figure 14 shows research studies under broad subject, and also **Figure 15** shows yearly distribution of research studies under broad subjects.

7. Findings of broad subject with years

According to the UGC recommended syllabus of LIS, all data which was collecting from INFLIBNET are content analysis and made through title and keyword and categorized in to 20 broad subjects, which is already discussed in Chapter 1. and Chapter 3. To identify the research trend in the area of subjects in LIS field, it will have to focus on findings. These are:

- After analyzing the data through the year 2011 to 2018, we can see that maximum research studies were done on “**Information Communication Technology**”, which got highest number of research studies, that is, 179 (25.03%) out of 715.
- “**Library Management**” got second position. The total number of research studies done on this subject was 104 (14.75%).

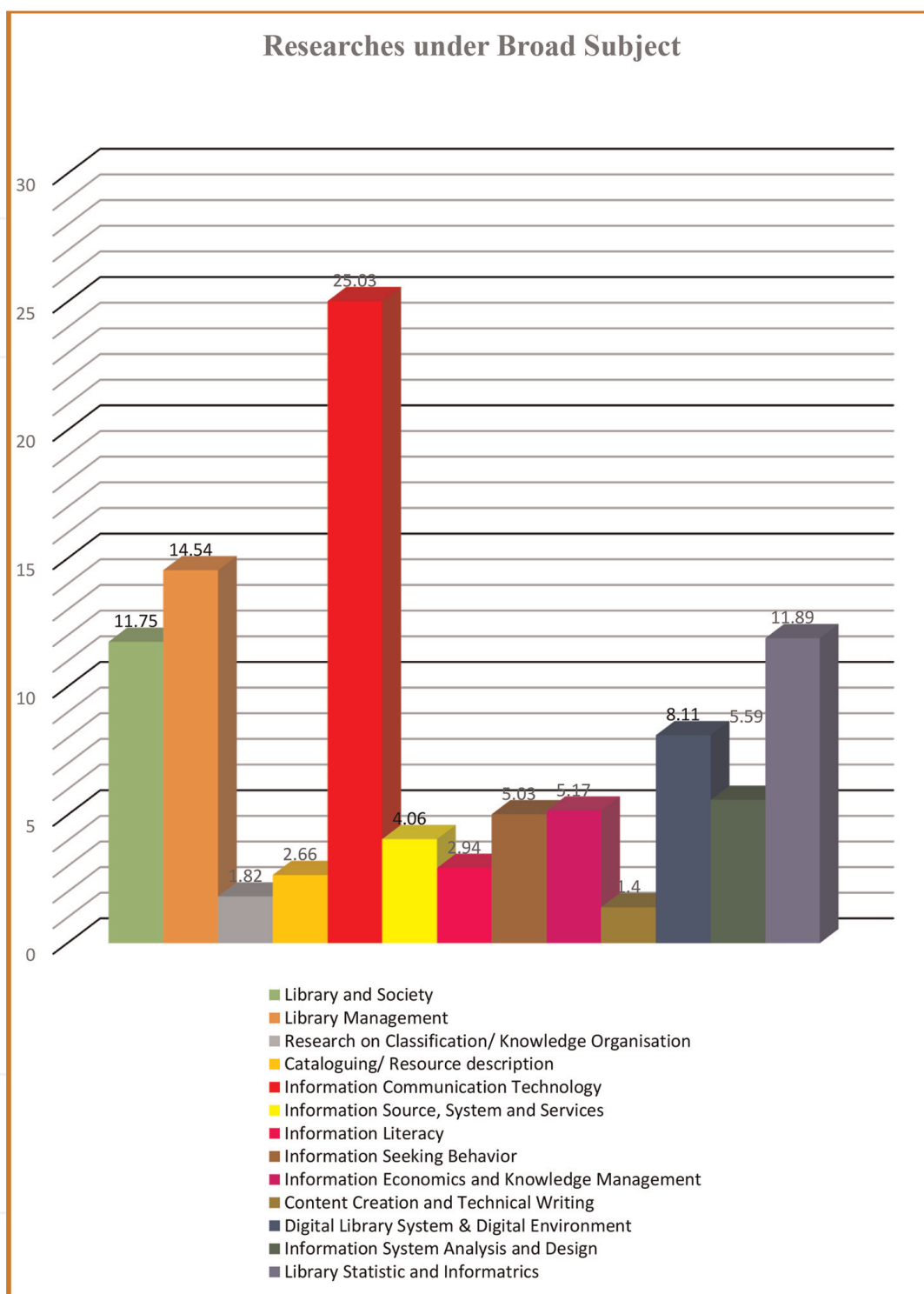


Figure 14.
 Research studies under broad subject.

- “**Library Statistic and Informatics**”, “**Library Society**” also had good number of research studies, which accrue 85 (11.89%) and 84 (11.75%), respectively.
- Next “**Digital Library System & Digital Environment**” and “**Information System Analysis and Design**” completed 58 (8.11%) and 40 (5.59%), respectively, which is also good.

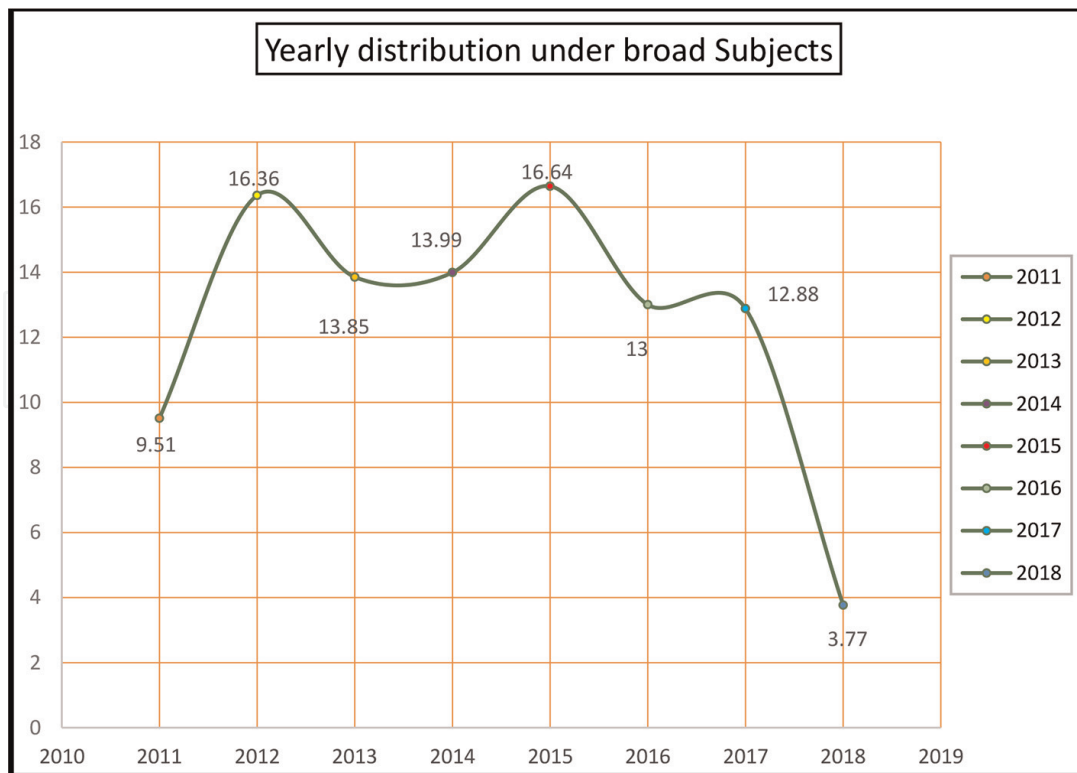


Figure 15.
Yearly distribution of research studies under broad subjects.

- But research studies on these subjects, that is, “Information Economics and Knowledge Management”, “Information Seeking Behavior”, and “Information Source, System, and Services” is medium.
- Lowest number of research studies were done under content creation and technical writing (1.4%), classification/ knowledge organization (1.82%), cataloging/resource description (2.66%), and information literacy (2.94%).
- On the basis of theses, which were uploaded to Shodhganga during 2011–2018, the yearly distribution showed that maximum number of research studies was in the years 2015 and 2012; the total was 119 (16.64%) and 117 (16.36%), respectively. The lowest research studies were done in the year 2018 (3.77%).

8. Conclusions

The current study shows that most of the doctoral theses that have been submitted in LIS discipline in India gradually come out from the core area of LIS fields like classification, cataloging, knowledge management, etc. The research trend is growing forward to the scholarly communication, IT based, management oriented, and in academic field also. Most of the research studies are being done on library statistics like bibliometric, scientrometric, webometrics, citation analysis, etc. Also, research on library society, information technology, application of information technology, digital library system and digital environment, information system analysis and design, and user approach is among the modern area of research of LIS field.

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