January 2024

Customer Churn Construct: Literature Review and Bibliometric Study

Uday Arun Bhale
PhD in Marketing from Lovely Professional University, PGDM Welingkar Institute of Mgmt Mumbai, MBA(IT), DMCA from CDAC Pune, BE Mechanical.

Harpreet Singh Bedi
Professor, Mittal School of Business, Lovely Professional University, India., harpreet.15604@lpu.co.in

Follow this and additional works at: https://managementdynamics.researchcommons.org/journal

 Part of the Business Commons

Customer Churn Construct: Literature Review and Bibliometric Study

Abstract

Background: The customer churn construct attracted the attention of marketing academics as in today's digital world price is becoming more and more universal. The study of customer churn is significant because it supports the design of sustainable competitive benefits and improvement in the monetary outcomes of companies. As per a study by Gartner (2012), Customer churn can impact the profitability of the company, a five per cent churn reduction can improve a company's profitability by up to twenty-five per cent, hence understating and managing customer churn is important for the organization. Objective: This study intends to offer the most recent status of published articles on the customer churn constructs on the Scopus database. Methodology: The bibliometric analysis was conducted on the keyword "customer churn" in the Scopus database using the "Title, Abstract, and Keywords" search option. Results and Conclusion: According to the study, the customer churn construct has emerged as a major research subject in the last decade, with a total of 1,305 articles till the end of the year 2020. Study reveals customer churn construct is a global phenomenon that has captured the interest of experts all around the world in the previous decade, exponential increase in publications ranging from the year 2017 to 2020. The study reveals that publications on customer churn are available in a variety of fields and the discipline of "business management" leads this area of study. The study can be used by academicians as a ready reference if they want to do further study on the customer churn construct.

RESEARCH ARTICLE

Customer Churn Construct: Literature Review and Bibliometric Study[☆]

Uday A. Bhale ^a ⓘ, Harpreet S. Bedi ^{b,}*

^a Lovely Professional University, PGDM Welingkar Institute of Mgmt Mumbai, MBA(IT), DMCA from CDAC Pune, BE Mechanical, India
^b Mittal School of Business, Lovely Professional University, India

Abstract

Background: Customer churn construct attracted attention of marketing academics as in today's digital world price is becoming more and more universal. Study of customer churn is significant because it supports the design of sustainable competitive benefits and improvement in the monetary outcomes of companies. As per study by Gartner (2012) Customer churn can impact the profitability of the company, five per cent churn reduction can improve company's profitability by up to twenty-five per cent, hence understating and managing customers churn is important for the organization.

Objective: This study intends to offer the most recent status of published articles on the customer churn constructs on the Scopus database.

Methodology: The bibliometric analysis was conducted on the keyword "customer churn" in the Scopus database using the "Title, Abstract, and Keywords" search option.

Results and conclusion: According to the study, the customer churn construct has emerged as a major research subject in the last decade, with a total of 1305 articles till the end of the year 2020. Study reveals customer churn construct is a global phenomenon that has captured the interest of experts all around the world in the previous decade, exponential increase in publications ranging from the year 2017–2020. The study reveals that publications on customer churn are available in a variety of fields and discipline of "business management" leads this area of study. The study can be used by academicians as a ready reference if they want to do further study on the customer churn construct.

Keywords: Review, Customer churn, Bibliometric, Scopus database

1. Introduction

Customer 'churn' is generally referred as customer changing or leaving the company/services. In today's world businesses need to respond to changes in customer behaviour caused by digital media, which can be achieved by thinking about and understating consumer churn. Recently the popularity of customer churn is increasing as variables like pricing becomes more standardized. Customer churn is a complex concept involving attitudinal and social measures that make analysis difficult. A widespread study has been conducted on the antecedents and outcomes of customer churn, such as customer relationship, trust, contentment, and commitment. The development of consumers and social media has significantly transformed customer behaviour and interactions with other customers and companies. Therefore, it is challenging for researchers to identify the direction for advancing this topic. This paper aims to offer an outline of the "customer churn" constructs to guide researchers towards the most influential works, outcomes, and issues that require further investigation. The paper presents a bibliometric analysis and literature works on customer churn constructs.

---

* Corresponding author.
E-mail addresses: uday.bhale@gmail.com (U.A. Bhale), harpreet.15604@lpu.co.in (H.S. Bedi).

2. Literature review

In today's hyper-competitive environment, establishments are seeking new ways to continue profitability. This is particularly true in the service industry, where customer acquisition costs are higher compared to customer retention costs (Hejazinia & Kazemi, 2014). A study by the "Association of Unified Telecom Service Providers of India" in year 2012 found that India had one of the maximum telecommunication user churn in the world, standing at six per cent resulting in a loss of over $94.03 Cr every year for mobile operators. This provides an opportunity for service providers to examine subscriber churn and underscores the significance of considering the factors that influence customer churn (Joshi, 2014). The available literature on the customer churn construct emphasizes the need for telecom companies to retain existing customers to maintain profitability and stay competitive (Deshpande (2012a,b); Wei & Chiu, 2002; Deshpande (2012a,b); Geetha & Kumari, 2012; Joshi, 2014; Saxena & Tiwari, 2016; Sharma & Sonwalkar, 2016a,b; Deo, 2017; Mahajan & Mahajan, 2017; Mishachandar & Anil Kumar, 2018; Sawant, 2020; Bhale & Bedi, 2022). Researchers also highlight that a five per cent reduction in consumer erosion can lead to a noteworthy surge in earnings, benefiting mobile service providers. Customer churn plays a pivotal role in achieving sustainable competitive advantage for mobile operators, as recognized by researchers and mobile operators.

Multiple studies, including those by Joshi (2007), Deshpande (2012a,b), Geetha and Kumari (2012), Baxendale et al. (2015),Sharma & Sonwalkar, 2016a,b, Chahal (2017),Deo (2017), Amin et al. (2017), Lee et al. (2017),Barmana et al. (2018), Belwal and Amireh (2018), Zaman (2018), Lunn and Lyons (2018), and Khandker and Joshi (2018a,b), Bhale and Bedi (2020a,b,c), Bhale and Bedi (2021), emphasize the importance of developing strategies to lower customer churn and highlight the significance of customers retention strategies for a company's success. In the telecom sector, price affordability is identified as the main cause of customer churn. Other factors, such as the need for faster mobile data speed, voice mobile connectivity, or mobile network coverage, can also contribute to customer churn.

Studies by Wei & Chiu, 2002, Torres-Moraga et al. (2008), Lisbeth et al. (2010), Brodie et al. (2011), Deshpande (2012a,b), Geetha and Kumari (2012), Svendsen and Prebensen (2013), Joshi (2014), Gamulin et al. (2015), Apenes Solem (2016), Sharma & Sonwalkar, 2016a,b, Akmal (2017), Banda and Tembo (2017), Confraria et al. (2017), Deo (2017), Diegmann et al. (2017), Mahajan & Mahajan (2017), Al-Dmour et al. (2019), Auerswald and Moshagen (2019), Ferreira et al. (2019),Stella (2019), Khan (2019), Kim et al. (2019) and Bhale and Bedi (2020c), establish a significant positive relationship between customer engagement, satisfaction, churn, and business performance. And these studies reveals that high levels of customer engagement and low customer churn are highly desirable in the service industry.

A research study in McKinsey by Jain and Suranan (2017) and Chheda et al. (2017) on incremental digital customer engagement and its impact on churn reveals that customers engaging with digital engagement channels tend to be more satisfied and less churn propensity than those using non-digital (traditional) service channels. However, the penetration of digital engagement channels remains lower than that of traditional service channels. To understand the reasons behind the lower penetration of digital service channels, it is necessary to examine churn matrix for each transaction of customer engagement channels and factors affecting customer engagement. This knowledge can help companies design their customer engagement strategies more effectively.

Researchers agree that there is a need for research on customer churn in today's environment, considering the influence of technology, social ecosystems, and economic conditions.

3. Methodology

To study the bibliometric analysis of customer churn, construct the "customer churn" keyword that has been assessed under the "title, abstract, and keywords" search option. Documents published till the year-end 2020 have been taken for analysis. This process resulted in the identification of 1305 documents. The objective of this search was a review all types of documents in the title and abstract that included "customer churn". The oldest and most recent dates of publication were taken till December 31, 2020. The search question string used shown in as below:

TITLE-ABS-KEY ("customer churn") AND PUB-YEAR <2021 AND (LIMIT TO (LANGUAGE, "English") the results of articles were 1305.

4. Analysis

The analysis of the documents is described below.

4.1. Year-wise analysis of customer churn

Fig. 1 shows that the number of publications on the customer churn constructs has significantly
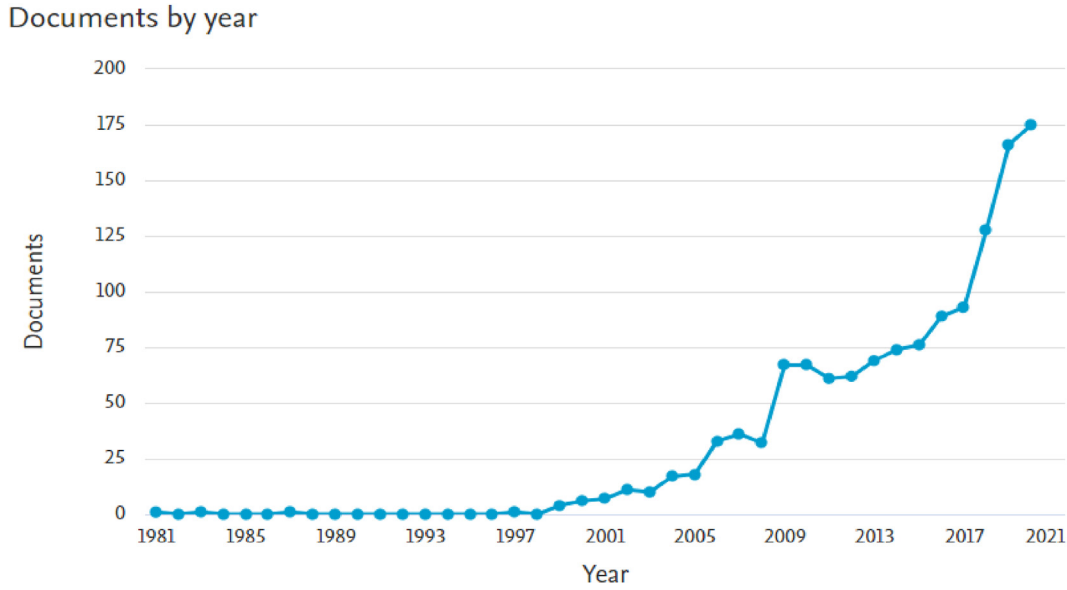
Documents by year

Fig. 1. Year-wise trend in published documents on customer churn construct.

increased in recent years, indicating the growing interest of scholars in this area of research. The chart demonstrates that there was very limited scholarly attention towards customer churn till the year 2008, with only a few publications on the topic. However, from the year 2008−2020, there has been an exponential growth in publications on the customer churn construct, with a total of 1159 documents published in twelve years. This suggests that "customer churn" has emerged as a significant research area in recent times, and researchers are increasingly focusing on understanding the factors that contribute to customer churn and developing effective strategies to mitigate it.

4.2. Country-wise analysis of customer churn

The customer churn construct has gathered an attention from researchers worldwide, as described in Fig. 2. The chart presents the top ten countries with the highest number of publications on customer churn till December 31, 2020. China emerges as the leading contributor with 262 publications, followed by India with 208 publications and the United States
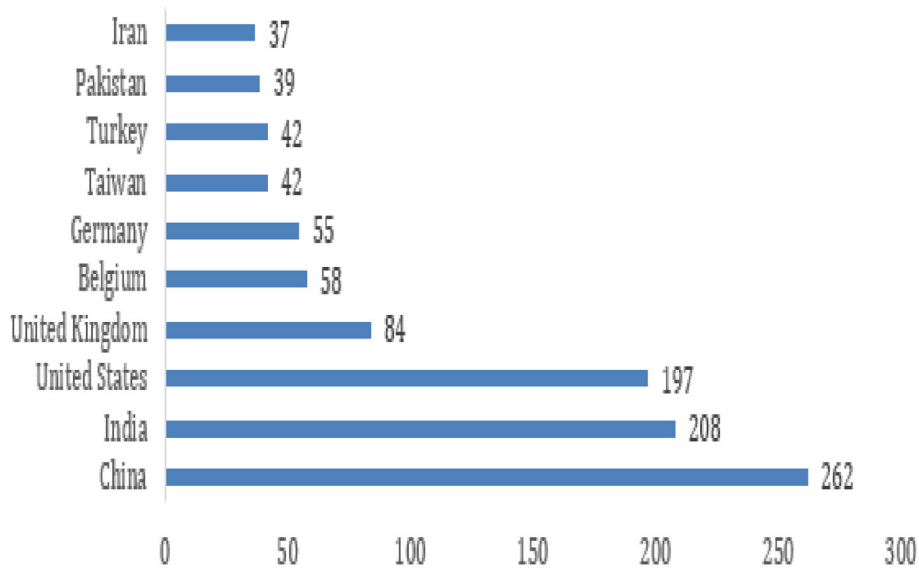

Fig. 2. Country-wise trend in published documents on customer churn construct.

of America with 197 publications. These findings indicate the global significance of customer churn as a research topic and the widespread interest in understanding and addressing the challenges associated with customer churn across different countries.

4.3. Author-wise analysis of customer churn

Table 1 presents the top five authors (in terms of the number of publications) on customer churn construct. It is interesting to see that three authors are having twelve documents published each but have a high variance in the citation count like author Anwar S. with 316 and Van Den Poen D. with 1518 citations.

4.4. Subject-area analysis of customer churn

Fig. 3 showcases the diverse range of disciplines in which publications on the customer churn construct are available. The chart highlights the dominant fields contributing to these publications, including Computer Science with 37% of the publications, Engineering with 19% of the publications, Business Management with 11.1% of the publications, and Mathematics with 10.1% of the publications. These disciplines demonstrate the multidisciplinary nature of studying customer churn constructs, as researchers from various fields contribute their expertise and insights to better understand and address this phenomenon. Additionally, publications in other diverse fields such as decision science, social science, physics, energy, and economics further reflect the wide-ranging relevance of the customer churn construct across various academic disciplines.

4.5. Keyword-wise analysis of customer churn

In Fig. 4, a keyword-wise analysis of the literature on 'customer churn' is presented. The analysis reveals that a total of one hundred sixty keywords have been used in the studies. Notably, the keyword 'sales' is the most frequently used in the literature, indicating its significance in the context of customer

Table 1. Top five authors (publication-wise) on customer churn construct.

Sr. No.	Name of Author	No. of Publications	No. of Citations
1	Baesens B.	25	1041
2	Xiao J.	13	147
3	Amin A.	12	324
4	Anwar S.	12	316
5	Van Den Poel D.	12	1518

Table 2. Frequently used keywords in the customer churn.

Keyword	Count	Count with the word 'Churn'
Sales	642	0
Forecasting	383	0
Data Mining	327	0
Churn Prediction	243	243
Customer Churn Prediction	240	240
Customer Satisfaction	226	0
Churn Predictions	220	220
Decision Trees	206	0
Customer Churn	205	205
Total	2692	908

churn. Other commonly used keywords include 'forecasting', 'data mining', and 'churn prediction', highlighting the focus on predictive analytics and forecasting techniques in understanding and managing customer churn (see Table 2).

It is worth mentioning that the word 'churn' itself appears 908 times out of a total of 2692 occurrences in the literature. However, due to the word cloud diagram analysis, where words are displayed with varying font sizes based on their frequency, the term 'churn' may not be prominently displayed because it is often combined with other words like 'churn prediction' or 'customer churn prediction'. Despite its smaller representation in the word cloud, the high count of 'churn' indicates its significance as a central concept in the field of customer churn research.

4.6. Source-wise analysis of customer churn

The documents on customer churn construct have been published in the form of books, book chapters, conference proceedings, journals, and trade publications. A description of all such publications is provided below (Table 3 and Fig. 5).

4.7. Top cited documents on customer churn

Table 4 shows the top documents in terms of number of citation on customer churn constructs in Scopus database till December 31, 2020. Here point to be noted that these documents title may not contains 'churn' word but since there reference keywords contains 'churn' word they are part of this list, this is line with the keyword analysis where top keyword was found as 'sales' and diverse nature of customer churn constructs.

4.8. Top journals on customer churn

Fig. 6 highlights the top publication where research on the churn construct has been published.
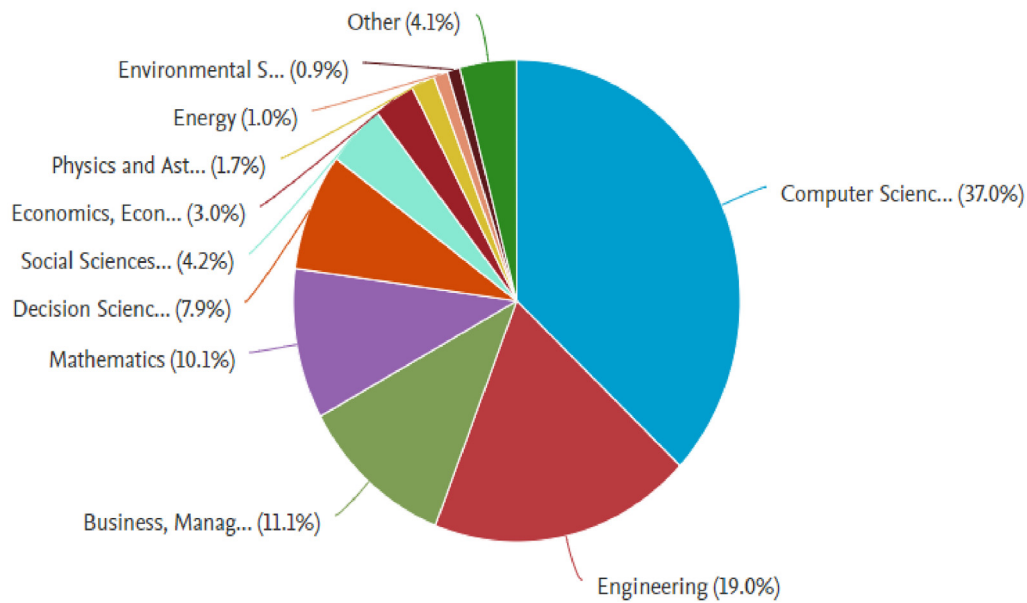
Documents by subject area

Fig. 3. Subject-area wise trend in published documents on customer churn construct.

These include "Lecture Notes in Computer Science", "Subseries Lecture Notes in Artificial Intelligence" and "Lecture Notes in Bioinformatics": These publications focuses on computer science, artificial intelligence (AI), and bioinformatics research.

Expert Systems with Applications: This journal is dedicated to the application of expert and intelligent systems in various domains. It covers a wide range of topics, including customer churn, and publishes research that demonstrates the practical application of these systems.

Advances in Intelligent Systems and Computing: This journal covers a broad spectrum of topics related to intelligent systems, including artificial intelligence, machine learning, and data mining. It provides a platform for researchers to present their work on the application of intelligent systems to customer churn analysis.

ACM International Conference Proceeding Series: Conference is renowned events in the field of computer science and related disciplines. The conference proceeding series publishes high-quality research papers presented at these conferences, including studies on customer churn.

Communications in Computer and Information Science: This publication focuses on research related to computer science and information science. It covers various sub-disciplines and provides a platform for researchers to share their findings on customer churn.

International Journal of Recent Technology and Engineering: This journal publishes research articles in various fields of engineering and technology, including customer churn. It aims to provide a platform for researchers to contribute to the advancement of technology and engineering practices.

These above journals have made significant contributions to the dissemination of research on the churn construct and have played a crucial role in advancing knowledge in this area. This diverse nature of customer churn construct is in line with the analysis showed in keyword analysis, subject wise analysis of customer churn constructs.

The above bibliometric study on the customer churn constructs shows that the customer churn construct is gaining more popularity among researchers in recent days.

5. Customer churn

The concept of customer churn has been extensively explored by numerous researchers. Various definitions of customer churn are outlined below:

- Modisette (1999) defined "customer churn in the telecom industry as customer decrement".
- Hadden et al. (2007) defined customer churn as "the act of leaving one service or product and transitioning to another".
- Yang and Chiu (2006) referred to customer churn as "the erosion of customers".

Fig. 4. Wordcloud diagram: Customer churn keyword.

- Joshi (2014) described churn as a customer leaving a particular product within a company and migrating to another product offered by the same company.
- Phadke et al. (2013) termed the subscriber's tendency to discontinue services with one service operator as churn.

The synthesis of literature available on customer churn (e.g., Khandker and Joshi (2018a,b); Anckar &

D'incau, 2002; Gustafsson et al., 2005; Ahn et al., 2006; Pathak & Rastogi, 2007; Ferguson & Brohaugh, 2008; Lee et al., 2011; Singh, 2011; Chen & Cheng, 2012; Geetha & Kumari, 2012; Adebiyi et al., 2016; Sharma & Sonwalkar, 2016a,b; Izogo, 2016; Adebiyi et al., 2017; Amin et al., 2017; Confraria et al., 2017; Barmana et al., 2018; Bhale, 2018; Zaman, 2018; Lunn & Lyons, 2018; Khandker and Joshi, 2018a,b; Ahmad et al., 2019; Bhale & Bedi, 2020a; Bhale & Bedi, 2020b) available on customer churn reveal. Reliance Jio's disruptive arrival into the Indian telecom sector has had a huge impact on Indian mobile customer behaviour. Customer usage has shifted away from voice and towards data. Data speed has become the most important influencing factor for churn in the Indian telecom market since the launch of Reliance Jio. Studies reveals that customer churn in telecom can also occur due to a desire for faster mobile data

Table 3. Source type document (count) on customer churn construct.

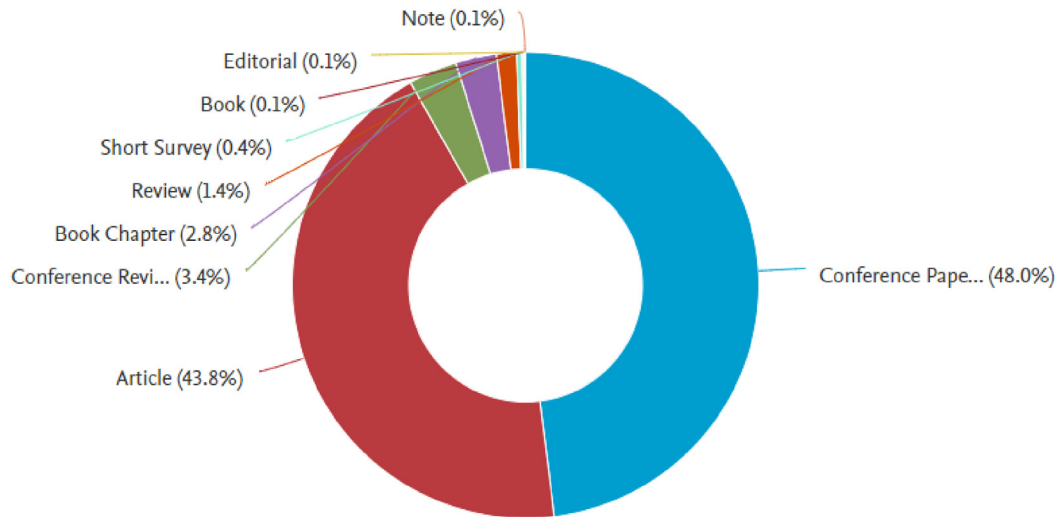| Source Type	
Journal	625
Conference Proceeding	543
Book Series	182
Book	27
Trade Journal	18

Documents by type

Fig. 5. Source wise publications (contribution) on customer churn construct.

speeds, greater voice mobile connectivity, or better mobile network coverage. In the telecom sector, one of the most powerful drivers of client attrition is price affordability.

6. Discussion and conclusion

The analysis of customer churn literature emphasizes the importance of customer churn constructs. Dissatisfied customers are more likely to switch to competitors, resulting in the loss of customers. Therefore, companies must address customer complaints and promptly resolve issues which cause dissatisfaction.

Some experts argue that companies should focus on improving customer churn prevention proactively, rather than relying solely on service recovery after a problem arises. Customer churn plays a significant role in business success, as it fosters customer loyalty, increases sales, and improves profitability. In the highly competitive service industry, understanding and effectively managing customer churn is essential for companies to thrive.

The present study employs a bibliometric analysis to identify major authors and key terms associated with customer churn. Additionally, it examines the countries and institutions actively engaged in customer churn research.

In summary, this bibliometric analysis provides valuable insights into major authors, key terms, countries, and institutions involved in the study of customer churn. It illuminates the global nature of research in this field and underscores the significance of customer churn in both business and academia.

7. Implications

The findings of this study highlight the significance of the customer churn construct and its role in research. The goals and criteria for customer churn vary across industrialized, emerging, and underdeveloped countries. According to Bhale and Bedi (2020a,b,c), less customer churn increases profitability of company. Customer churn remains a subject of interest for researchers due to its susceptibility to changes in the environment, region, and technological advancements. It is a global phenomenon that has garnered attention from researchers across various countries. The study

Table 4. : Top documents (in terms of a number of citations) on customer churn construct.

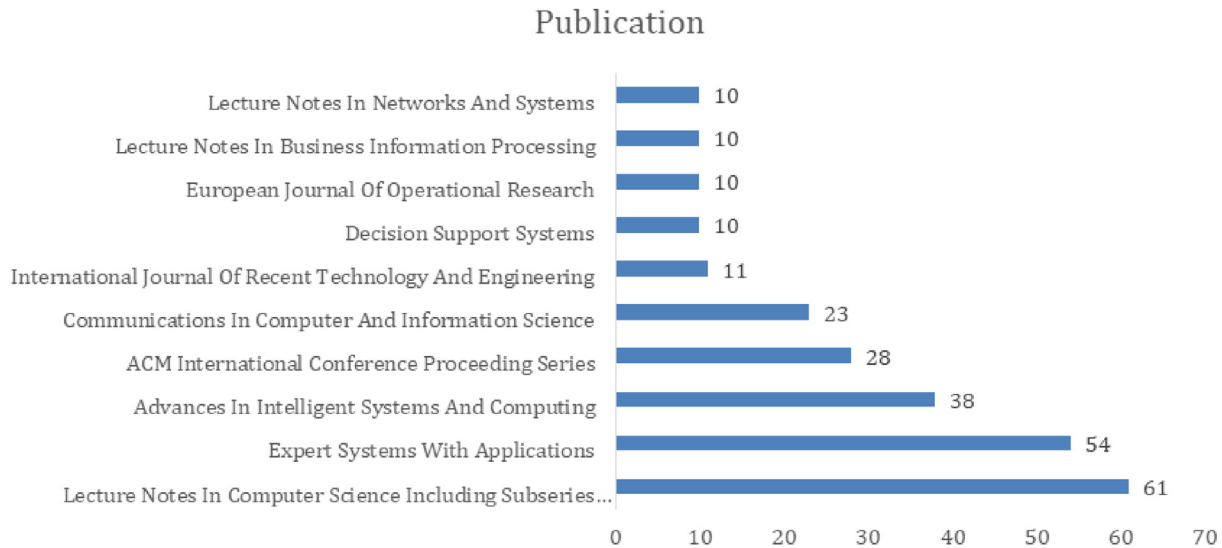| Sr. No	Document Title	Year
1	The effect of customer satisfaction, relationship commitment dimension and triggers on customer retention	2005
2	Customer switching behaviour in online services: an exploratory study of the role of selected attitudinal, behavioural and demographic factors	2001
3	Defection detection; measuring and understanding the predictive accuracy of customer churn models	2006
4	Applying data mining in customer churn management	2004
5	Turning telecommunication calls details to churn prediction: a data mining approach	2002

Publication

Fig. 6. Top journals (in terms of a number of publications) on customer churn construct.

reveals that publications on customer churn span diverse areas, with business management being the dominant field of research. Overall, these analyses offer valuable insights into the relationships and patterns within bibliographic data. The study can be used by industries to find the relevant documents in order to find the documents to understand customer churn constructs. The study can be used by academician and researchers to identify the on customer churn constructs while doing the research. This study serves as a reference point for future investigations in the field of customer churn, providing a foundation for further exploration.

8. Limitations and future scope

The study is completed on the Scopus database till the cut-off year of December 31, 2020; other databases are not included in this study. In the future, a similar study can be completed by other databases with varying latest-year cutoffs.

References

Adebiyi, S. O., Oyatoye, E. O., & Amole, B. B. (2016). Relevant drivers for Customers' churn and retention decision in the Nigerian mobile telecommunication industry. *Journal of Competitiveness, 6*(3), 52–67. https://doi.org/10.7441/joc.2016.03.04

Adebiyi, S. O., Oyatoye, E. O., & Amole, B. B. (2017). Improved customer churn and retention decision management using operations research approach. *Emerging Markets Journal, 6*(2), 12–21. https://doi.org/10.5195/emaj.2016.101

Ahmad, S., Srivastava, A., & Sharma, S. (2019). Factors affecting attrition in cellular service subscription. *International Journal of Business Excellence, 18*(4), 570. https://doi.org/10.1504/ijbex.2019.101534

Ahn, J.-H., Han, S.-P., & Lee, Y.-S. (2006). Customer churn analysis: Churn determinants and mediation effects of partial defection in the Korean mobile telecommunications service industry. *Telecommunications Policy, 30*(10–11), 552–568. https://doi.org/10.1016/j.telpol.2006.09.006

Akmal, M. (2017). *Factor causing customer churn: A qualitative explanation of customer churns in Pakistan telecom industry master of science in management sciences (marketing) department of management and social sciences.* https://thesis.cust.edu.pk/UploadedFiles/MUHAMMAD%20AKMAL-%20MMS143071.pdf.

Al-Dmour, H. H., Ali, W. K., & Al-Dmour, R. H. (2019). The relationship between customer engagement, satisfaction, and loyalty. *International Journal of Customer Relationship Marketing and Management, 10*(2), 35–60. https://doi.org/10.4018/ijcrmm.2019040103

Amin, P., Kale, A., & Nilakantan, A. (2017). *Perception study of telecom user post jio plans.* http://economic.upit.ro/RePEc/pdf/2017_3_25.pdf.

Anckar, B., & D'incau, D. (2002). Value creation in mobile commerce: Findings from a consumer survey. *Journal of Information Technology Theory and Application, 4*(1), 43–64. https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1187&context=jitta.

Apenes Solem, B. A. (2016). Influences of customer participation and customer brand engagement on brand loyalty. *Journal of Consumer Marketing, 33*(5), 332–342. https://doi.org/10.1108/jcm-04-2015-1390

Auerswald, M., & Moshagen, M. (2019). How to determine the number of factors to retain in exploratory factor analysis: A comparison of extraction methods under realistic conditions. *Psychological Methods, 24*(4), 468–491. https://doi.org/10.1037/met0000200

Banda, P. K., & Tembo, S. (2017). Factors leading to mobile telecommunications customer churn in Zambia. *International Journal of Engineering Research in Africa, 31*, 143–154. https://doi.org/10.4028/www.scientific.net/jera.31.143

Barman, H., Dutta, M. K., & Nath, H. K. (2018). The telecommunications divide among Indian states. *Telecommunications Policy, 42*(7), 530–551. https://doi.org/10.1016/j.telpol.2018.05.003

Baxendale, S., Macdonald, E. K., & Wilson, H. N. (2015). The impact of different touchpoints on brand consideration. *Journal of Retailing, 91*(2), 235–253. https://doi.org/10.1016/j.jretai.2014.12.008

Belwal, R., & Amireh, M. (2018). Service quality and attitudinal loyalty: Consumers' perception of two major telecommunication companies in Oman. *Arab Economic and Business Journal, 13*(2), 197–208. https://doi.org/10.1016/j.aebj.2018.11.003

Bhale, U. (2018). Changes in customer service approach, eco system and new trends in customer service. *International*

Journal for Research in Engineering Application & Management (IJREAM), 4(7), 7. https://doi.org/10.18231/2454-9150.2018.0891

Bhale, U., & Bedi, H. (2020a). A qualitative study on service channels in the Indian telecom industry. *International Journal of Scientific & Technology Research, 9*(3), 265—270. https://www.ijstr.org/final-print/mar2020/A-Qualitative-Study-On-Service-Channels-In-The-Indian-Telecom-Industry.pdf.

Bhale, U., & Bedi, H. S. (2020b). A qualitative study on mobile number portability- 7 th amendment in Indian telecom. *International Journal Of Scientific & Technology Research, 9*(3), 882—886. https://www.ijstr.org/final-print/feb2020/A-Qualitative-Study-On-Mobile-Number-Portability-7th-Amendment-In-Indian-Telecom.pdf.

Bhale, U., & Bedi, H. S. (2020c). A study on the impact of engagement with service channels and factors affecting mobile number portability. *International Journal of Scientific & Technology Research, 9*(3), 271—277. https://www.ijstr.org/final-print/mar2020/A-Study-On-The-Impact-Of-Engagement-With-Service-Channels-And-Factors-Affecting-Mobile-Number-Portability.pdf.

Bhale, U., & Bedi, H. S. (2021). *International conference on management and information systems structural equation modelling (SEM) of determinants of customer engagement (CE), satisfaction and churn: A case of mobile service providers in India.* http://www.icmis.net/icmis21/ICMIS21CD/PDF/S2160-Done.pdf.

Bhale, U., & Bedi, H. S. (2022). A study on factors affecting consumer churn in the Indian telecom industry. *Management Dynamics, 20*(2), 10—17. https://doi.org/10.57198/2583-4932.1010

Brodie, R. J., Hollebeek, L. D., Jurić, B., & Ilić, A. (2011). Customer engagement: Conceptual domain, fundamental propositions, and implications for research. *Journal of Service Research, 14*(3), 252—271. https://doi.org/10.1177/1094670511411703

Chahal, M. (2017). *A study of customer satisfaction retention and loyalty for service quality modelling in telecom sector.* Handle.net. http://hdl.handle.net/10603/207281.

Chen, C.-F., & Cheng, L.-T. (2012). A study on mobile phone service loyalty in Taiwan. *Total Quality Management and Business Excellence, 23*(7—8), 807—819. https://doi.org/10.1080/14783363.2012.661129

Chheda, S., Duncan, E., & Roggenhofer, S. (2017, March 17). *Putting customer experience at the heart of next-generation operating models.* McKinsey. Www.mckinsey.com. https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/putting-customer-experience-at-the-heart-of-next-generation-operating-models.

Confraria, J., Ribeiro, T., & Vasconcelos, H. (2017). Analysis of consumer preferences for mobile telecom plans using a discrete choice experiment. *Telecommunications Policy, 41*(3), 157—169. https://doi.org/10.1016/j.telpol.2016.12.009

Deo, A. (2017). Telecom industry in India: Evolution, current challenges & future road map. *IMR (Indira Management Review), XI.* http://indiraisbs.ac.in/IMR/wp-content/uploads/2017/11/10__July_2017.pdf.

Deshpande, D. (2012a). *A study of strategies for customer acquisition and retention of selected mobile communication service providers in and around pune city.* Inflibnet.ac.in. http://hdl.handle.net/10603/281818.

Deshpande, D. (2012b). *A study of strategies for customer acquisition and retention of selected mobile communication service providers in and around pune city.* Inflibnet.ac.in. http://hdl.handle.net/10603/281818.

Diegmann, P., Basten, D., & Pankratz, O. (2017). Influence of communication on client satisfaction in information system projects: A quantitative field study. *Project Management Journal, 48*(1), 81—99. https://doi.org/10.1177/875697281704800106

Ferguson, R., & Brohaugh, B. (2008). Telecom's search for the ultimate customer loyalty platform. *Journal of Consumer Marketing, 25*(5), 314—318. https://doi.org/10.1108/07363760810890543

Ferreira, P., Telang, R., & De Matos, M. G. (2019). Effect of friends' churn on consumer behavior in mobile networks. *Journal of Management Information Systems, 36*(2), 355—390. https://doi.org/10.1080/07421222.2019.1598683

Gamulin, N., Štular, M., & Tomažič, S. (2015). Impact of social network to churn in mobile network. *Automatika, 56*(3), 252—261. https://doi.org/10.7305/automatika.2015.12.742

Geetha, M., & Kumari, J. (2012). Analysis of churn behavior of consumers in Indian telecom sector. *Journal of Indian Business Research, 4*(1), 24—35. https://doi.org/10.1108/17554191211206780

Gustafsson, A., Johnson, M. D., & Roos, I. (2005). The effects of customer satisfaction, relationship commitment dimensions, and triggers on customer retention. *Journal of Marketing, 69*(4), 210—218. https://doi.org/10.1509/jmkg.2005.69.4.210

Hadden, J., Tiwari, A., Roy, R., & Ruta, D. (2007). Computer assisted customer churn management: State-of-the-art and future trends. *Computers & Operations Research, 34*(10), 2902—2917. https://doi.org/10.1016/j.cor.2005.11.007

Hejazinia, R., & Kazemi, M. (2014). *Prioritizing factors influencing customer churn.* https://www.semanticscholar.org/paper/Prioritizing-factors-influencing-customer-churn-Hejazinia-Kazemi/991816bd37b7d23272f70683701ac7d726ef749e#citing-papers.

Izogo, E. E. (2016). Antecedents of attitudinal loyalty in a telecom service sector: The Nigerian case. *International Journal of Quality & Reliability Management, 33*(6), 747—768. https://doi.org/10.1108/ijqrm-06-2014-0070

Jain, P., & Suranan, K. (2017, December 12). *Reducing churn in telecom through advanced analytics.* McKinsey. Www.mckinsey.com. https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/reducing-churn-in-telecom-through-advanced-analytics.

Joshi, S. (2007). *Chrun management with reference to customer retention through retailer loyalty to telecom service providers.* Handle.net. http://hdl.handle.net/10603/31192

Joshi, S. (2014). Customer experience management: An exploratory study on the parameters affecting customer experience for cellular mobile services of a telecom company. *Procedia - Social and Behavioral Sciences, 133,* 392—399. https://doi.org/10.1016/j.sbspro.2014.04.206

Khan, Y. (2019). Factors affecting service quality, customer satisfaction and customer churn in Pakistan telecommunication services market. *Journal of Mechanics of Continua and Mathematical Sciences, 14*(4). https://doi.org/10.26782/jmcms.2019.08.00048

Khandker, V., & Joshi, K. P. (2018a). Price determination for 4G service using price sensitivity model in India. *Journal of Revenue and Pricing Management, 18*(2), 93—99. https://doi.org/10.1057/s41272-018-0142-4

Khandker, V., & Joshi, K. P. (2018b). Price determination for 4G service using price sensitivity model in India. *Journal of Revenue and Pricing Management, 18*(2), 93—99. https://doi.org/10.1057/s41272-018-0142-4

Kim, M.-K., Park, M.-C., Lee, D. H., & Park, J.-H. (2019). Determinants of subscriptions to communications service bundles and their effects on customer retention in Korea. *Telecommunications Policy, 43*(9), Article 101792. https://doi.org/10.1016/j.telpol.2018.10.005

Lee, E.-B., Kim, J., & Lee, S.-G. (2017). Predicting customer churn in mobile industry using data mining technology. *Industrial Management & Data Systems, 117*(1), 90—109. https://doi.org/10.1108/imds-12-2015-0509

Lee, S., Yu, M., Yang, C., & Kim, C. (2011). A model for analyzing churn effect in saturated markets. *Industrial Management & Data Systems, 111*(7), 1024—1038. https://doi.org/10.1108/02635571111161271

Lisbeth, S., Holm, O., & Holm. (2010). *The influences of physical environment of multi-brand fashion retail store on consumer's behavior Fashion Management JU-PING HO X090261 FEI LI X090142.* https://www.diva-portal.org/smash/get/diva2:1312260/FULLTEXT01.pdf.

Lunn, P. D., & Lyons, S. (2018). Consumer switching intentions for telecoms services: Evidence from Ireland. *Heliyon, 4*(5), Article e00618. https://doi.org/10.1016/j.heliyon.2018.e00618

Mahajan, V., & Mahajan, R. (2018). Variable selection of customers for churn analysis in telecommunication industry.

International Journal of Virtual Communities and Social Networking, 10(1), 17—32. https://doi.org/10.4018/ijvcsn.2018010102

Mishachandar, B., & Anil Kumar, K. (2018). Predicting customer churn using targeted proactive retention. *International Journal of Engineering & Technology, 7*(2.27), 69. https://doi.org/10.14419/ijet.v7i2.27.10180

Modisette, L. (1999). Milking wireless churn for profit. *Telecommunications,* 73—74.

Pathak, K., & Rastogi, S. (2007). Determinants of customers churn in emerging telecom markets: A study of Indian cellular subscribers. *Journal of Global Academy of Marketing Science, 17*(4), 91—111. https://doi.org/10.1080/12297119.2007.9707268

Phadke, C., Uzunalioglu, H., Mendiratta, V. B., Kushnir, D., & Doran, D. (2013). Prediction of subscriber churn using social network analysis. *Bell Labs Technical Journal, 17*(4), 63—75. https://doi.org/10.1002/bltj.21575

Sawant, J. (2020). A study on customer churn in the telecommunications industry. *International Journal of Management, 8*(3), 121—124. https://doi.org/10.35620/ijm.2020.8308

Saxena, R., & Tiwari, N. (2016). *IJSRST162314 | A study on mobile subscription, penetration and coverage Trend in Indian mobile sector.* http://ijsrst.com/paper/383.pdf.

Sharma, V., & Sonwalkar, J. (2016a). Consumer retention strategies for telecom service industry in India: A theoretical perspective. *Journal of Management Research and Analysis, 3*(3), 110. https://doi.org/10.5958/2394-2770.2016.00017.x

Sharma, V., & Sonwalkar, J. (2016b). Consumer retention strategies for telecom service industry in India: A theoretical perspective. *Journal of Management Research and Analysis, 3*(3), 110. https://doi.org/10.5958/2394-2770.2016.00017.x

Singh, A. K. (2011). *Factors affecting customer loyalty in telecom sector.* Inflibnet.ac.in. http://hdl.handle.net/10603/51366.

Stella, P. (2019). *Study on consumer satisfaction and brand loyalty towards mobile Phone services of bsnl in Tirunelveli district Tamilnadu.* Inflibnet.ac.in. http://hdl.handle.net/10603/244516.

Svendsen, G., & Prebensen, N. (2013). The effect of brand on churn in the telecommunications sector. *European Journal of Marketing, 47*(8), 1177—1189. https://doi.org/10.1108/03090561311324273

Torres-Moraga, E., Vásquez-Parraga, A. Z., & Zamora-González, J. (2008). Customer satisfaction and loyalty: start with the product, culminate with the brand. *Journal of Consumer Marketing, 25*(5), 302—313. https://doi.org/10.1108/07363760810890534

Wei, C.-P., & Chiu, I.-T. (2002). Turning telecommunications call details to churn prediction: A data mining approach. *Expert Systems with Applications, 23*(2), 103—112. https://doi.org/10.1016/s0957-4174(02)00030-1

Yang, & Chiu. (2006). *Knowledge discovery on customer churn prediction.* Dallas, Texas, USA: Proceedings of the 10th WSEAS International Conference on Applied mathematics.

Zaman, T. (2018). *Customer perception of Airtel telecommunications after the introduction of 4G network.* Dspace.bracu.ac.bd. http://hdl.handle.net/10361/10975.