Accelerating Insurance with AI Technology: A Bibliometric Study

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Abstract

Insurtech uses cutting-edge technologies like artificial intelligence (AI), big data, blockchain, and the Internet of Things (IoT) to revolutionize the insurance sector, tackling weaknesses by improving product innovation, efficiency, and cost savings. Furthermore, contemporary technology enable insurers to implement pay-as-you-drive or pay-how-you-drive auto insurance, as well as dynamic underwriting, which will replace an annual or one-time premium payment with continuing adaptive pricing systems. This study uses bibliometric techniques to analyze the scientific literature on Insurtech, resulting in an unbiased analysis of current research trends. The purpose of the study is to uncover promising research topics by focussing on the most recent technology developments, strategies, and applications propelling the sector ahead. Furthermore, this study will look to find the research direction and the future scope of researchers in the domain of insurtech, by identifying significant keywords and topics. This study employs various methods like descriptive statistics, cluster analysis, and network analysis which represent the current state of Insurtech research. The study also uncovers the most influential researches and prominent authors of the domain, and how research around the globe is developing in this domain of insurtech. It also examines the evolution of publications over time, highlighting the most prominent articles and writers who have contributed significantly to the field's knowledge base.

Keywords: AI, Bibliometric Analysis, Blockchain, Innovation, Insurtech, Technological Integration.

Introduction

There are nexuses causal relationships that cannot be separated, once they are amidst each other, and technology has continued to be this mediator since the dawn of the 21st century. Possibly every sector of the daily business of human life has seen this shift of the paradigm of their functionality, and the financial sector rushed to join the trend of its integration in various aspects of their operations. Among the sub-sectors of finance, the insurance sector is said to be the most classical sector in its functionalities. However, the introduction of machine learning (ML), and artificial intelligence (AI), has made decision-making smoother, swift, and more data-driven, while blockchain technology has identified data security problems, this opened an efficient door for the insurance industry to step into the 4th industrial revolution era of the business and commerce. This gave birth to new opportunities in the insurance industry and every new opportunity comes with new challenges. The unification of the financial system should result in cost savings and a more efficient financial market (1). Any internal control system must be adaptive to changes in the commercial, operational, and regulatory environment to meet new and fast-changing business models, increased usage and dependence on technology, rising regulatory requirements and audits, globalisation, and other hurdles (2). The change in insurance's digital experience is merely a portion of the revolution brought about by InsurTech. "Data science," "big data," and "AI" (including machine learning approaches and deep learning) emerged as buzzwords in actuarial science. The notion of leveraging non-traditional data and advanced analytics is now generally acknowledged and regarded as a critical component of InsurTech (3). The use of technological innovations in the conventional insurance sector is known as Insurtech, a new term derived from the combination between insurance and technology. Initially, this phrase represented a straightforward data analysis procedure, although disruptive technologies have revolutionised its meaning and extended its applications (4). Currently, the Insurtech phenomenon is defined as the use of

technology by conventional and alternative market players to offer data-driven and customer-oriented approaches, improve insurance product marketing and distribution, optimize underwriting stages along with risk management, as well as innovate traditional insurance enterprise models (5). Information technology reduces costs, improves efficiency, and provides clients with personalized, additional value-added, convenient, and easy-to-use services (6). Today, Insurtech aspires to leverage artificial intelligence (AI), big data, blockchain, and the Internet of Things (IoT) in order to enhance the insurance ecosystem and overcome the industry's vulnerabilities (7, 8). This is accomplished by making modifications to the creation of insurance products and increasing efficiency and savings (4, 9). Insurtech also provides specific, bespoke, and personalized solutions to life hazards by using data analytics, sensors, wearables, and mobile phone data (10), etc. Wearable gadgets (such as the Apple Watch) enable health insurers and life insurance firms to collect a variety of biometric data on physical activity, cardiovascular measurements, and sleep quality data, allowing them to better understand the insured's actual risks. In the case of automobile insurance, telematics enables the real-time transmission of a huge quantity of information, allowing the insurer to more precisely predict the probability of claims while avoiding approximations that cause low-risk individuals to leave the covered pool. This happens through technical equipment that conveys real-time data on driving style, mileage, speed, and so on (11). Furthermore, modern technologies allow insurers to adopt pay-as-you-drive or pay-how-you-drive auto insurance, as well as dynamic underwriting, which will replace an annual or one-time premium payment with ongoing adaptive pricing systems (9, 12). Although the word "InsurTech" is commonly associated with "InsurTech start-ups," it may also

refer to an "ecosystem of focused, innovation-driven enterprises" (13), defining InsurTech as the junction of industry specialty and maturity provides context for the idea (14). At one end of the industry specialisation spectrum, technological solutions may be applied extensively across several sectors, whilst at the other end, the concentration is on a particular insurance product. We monitor firms at all stages of development, from start-ups to established enterprises that have been offering or using technological solutions for decades (3). According to BCG reports, the financing levels of insurtech companies throughout the world reflect their progress. Global financing for insurtech has increased from around $2 billion in 2016 to $6 billion in 2020. While the Americas account for the majority of investment (68 percent in 2020), Asia has been the fastest-growing region till 2019. Funding in India has also increased, but from a lesser base of $11 million in 2016 to $287 million in 2020. The financing pattern has persisted, with Turtlemint raising $30 million in November 2020 and Digit raising over $84 million at the beginning of 2021. General insurance is the largest and fastest-growing market, accounting for 60% of worldwide investment in 2020 and with the highest three-year CAGR of 65%. In India, too, General Insurance financing has increased fast in recent years, accounting for 75% of the funding pool by 2020. B2C Insurtechs are leading the way in terms of finance, accounting for 65 percent of worldwide funding in 2020, compared to 95 percent in 2015. However, B2B Insurtechs have shown a considerable trajectory in recent years, growing by 78% over the previous five years. In contrast, India continues to witness an over-indexing of B2C investments, accounting for 97% of total financing in 2020. The Pulse of Fintech 2018' Ian Pollari depicted the graph of insurtech investments which is shown in Figure 1.
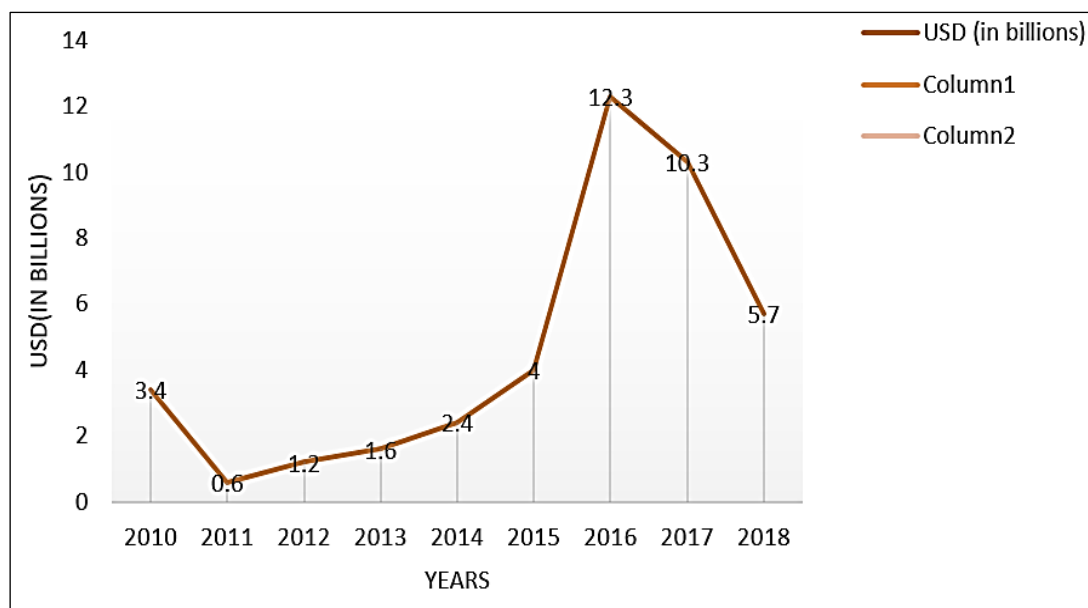
Figure 1: Insurtech Investments (in Billion Dollars)

Methodology

Review Strategy

In this article, bibliometric methodology is used in order to analyze the scientific literature on insurtech and to figure out the recent trends in this research. This methodology is free of various biases that traditional systematic literature review suffers from in the process of sample selection. This methodology gives the researcher a comprehensive overview of the subject and various clusters of knowledge, such as the keywords used, important sources, authors, etc. as it uses both quantitative and qualitative approaches at the same time in order to review the pieces of literature and identify the knowledge gaps (15, 16).

The bibliometric analysis examines publications on a certain subject or area quantitatively and objectively (17, 18). Bibliometric analysis evaluates works' quantitative approaches in relation to their qualitative categories (19). Bibliometric studies are widely regarded as an important technique for appraising social science research. They provide insight into the publishing dynamics and evolution of research disciplines throughout time (20).

The data set used for this review article on the integration of technology in the insurance industry was extracted from the Scopus database, as it is one of the most used databases in the domain of finance (21). This research takes into account all the scientific studies that have been done in the domain of insurtech over the last ten years (2014-2023), and there isn't any significant number of work done in this subject before the year 2014, and the documents of the year 2024 aren't considered because there is still around half a year left from the date of data collection so, there is a chance of misinterpretation over that aspect. Insurtech is the application of Fintech to the insurance business, which has just recently gained independence, with the evolution of technology and its adaptation in the industry (22).

In order to collect the data the terms used in the search string were, ("emerging technologies" AND insurance) OR ("digital transformation" AND insurance) OR insurtech OR ("technological integration" AND insurance), were searched in title, abstracts, and keywords which gave out 629 documents. Then the time limiter was put ranging from 2014 to 2023, the documents from the year 2024 were left out of the analysis because of various reasons like they didn't get enough time to access the citations which are really crucial for the performance analysis and they's still half of the years left which might lead to the publication of more documents the current trend might not show, leaving a significant chance of misinterpretation. On the other hand, final publication stage articles were taken and the articles in press were filtered out. The types of documents were limited to Articles, Conference Papers, Book chapters, Review articles, Conference

reviews, and books, which gave the final data set of 486 docs.

VosViewer software was used to analyze bibliographic data. This instrument is designed to evaluate the performance of researchers in Insurtech research and content analysis. The primary unit of analysis in performance analysis is the number of publications and citations (22). Analyzing these two proxies of scientific productivity and research influence helps us to better comprehend the volume and effect of research in a certain scientific sector. In particular, the network analysis discovered the linkages between the studies in the sample using the author's keywords, as well as the primary research streams in Insurtech research (23, 24). Using bibliographic data on scientific distribution provides a comprehensive picture of scientific creation in a certain subject (25-27). The program creates network visualizations in which elements are represented by a circle label. Each label and circle in the network are assigned a size based on its weight in relation to other parts. The lines on the network map represent the links between key articles. The distance between objects represents the intensity of their linkages, whereas shorter distances reflect the strength of their interactions. Furthermore, the circles are colored to correspond to the clusters into which the relevant objects are classified (3). This study also uses MS Excel for its analytics and its pictorial representation of data. The purpose of this study is to identify and analyze emerging research frontiers in the subject of Insurtech, with a focus on the most recent technology advancements, techniques, and applications propelling the sector ahead. This study ranks the countries based on their Insurtech research output, focusing on prominent nations and their contributions to field breakthroughs. Furthermore, the research aims to identify emergent keywords and topics in the Insurtech literature that represent current trends, developments, and focus areas within the industry. Finally, this study will look at how Insurtech publications have evolved, identifying the most prominent articles and authors who have made substantial contributions to the corpus of knowledge in the field. The fundamental steps of the methodology used to answer the questions above are given in the Figure 2 below.
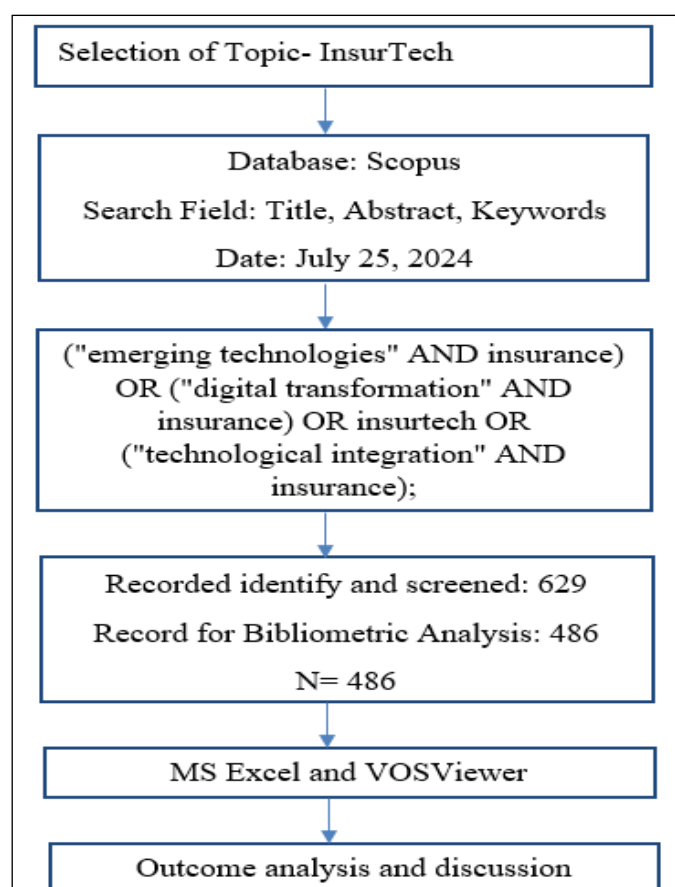

Figure 2: The Flow of the Research

Results and Discussion

Performance Analysis

Publication Pattern: Figure 3 shows the document composition of the sample [486 docs.] selected for the analysis. It mostly consists of 205 scientific research articles, there are some studies for emerging disciplines such as insurtech or any other subject for that matter conference proceedings have more importance than the articles for imparting and finding new knowledge (28, 29). The sample selected for this study provides 132 conference papers and 92 book chapters, while the rest comprises review articles and books. Figure 3 shows the pie diagram of the number of documents where deep blue represents the scientific research articles, the maroon section of the disc shows the number of conference papers green shows the number of book chapters, violet shows the review articles, the lighter shade of the blue shows conference review and orange shows the number of books in the sample.
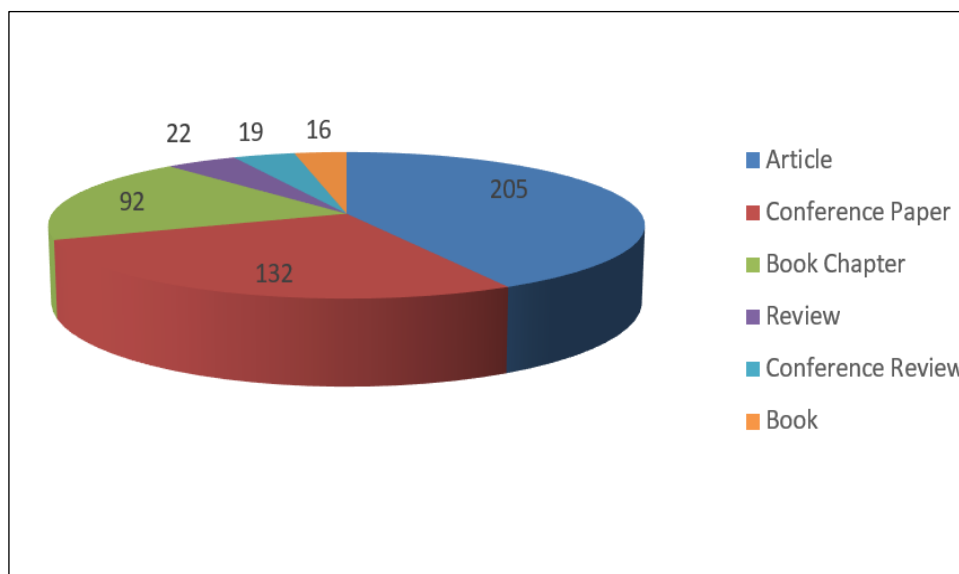

Figure 3: Distribution of Research Papers

Table 1: Number of Documents Published Over the Years

Year	Number of Docs
2023	125
2022	125
2021	82
2020	64
2019	33
2018	28
2017	13
2016	5
2015	3
2014	8

The year-wise documents published in the Scopus database show a gradual increase in the number of documents from 2015 to 2022, while the total number of articles didn't see any rise in the year 2023 in comparison to 2022. Figure 4 is the line graph showing the pictorial representation of Table 1, which depicts a steady rise in the number of publications in the given area of research. Since 2014, there has been a small dip in research publications in 2015, but ever since, research publications have only risen. The highest jump in the research work was seen from 2021 to 2022 where the publication matrix has risen from 82 to 125.
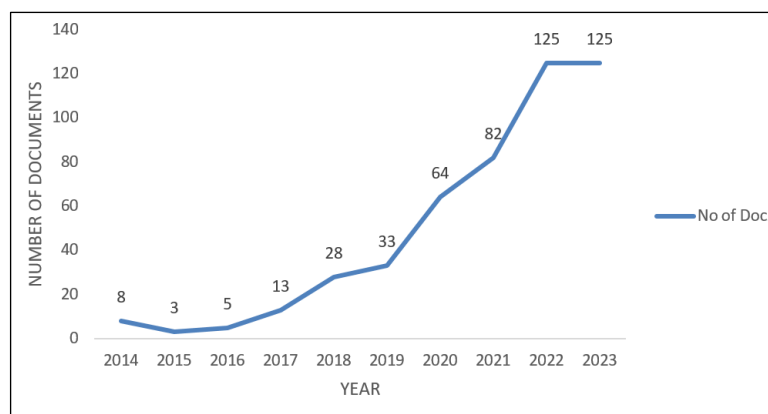
Figure 4: Publication Trend

Most Influential Articles: Table 2 lists the top 5 most cited articles in the sample, the first one being, 'The Impact of Digitalization on the Insurance Value Chain and the Insurability of Risks' published in 2018 at "Geneva Papers on Risk and Insurance: Issues and Practice", which is also among the most cited source producing 8 articles till 2023. This study addresses the digitalization of the insurance industry, with an emphasis on the impacts in Russia. It emphasizes the role of information technology in enhancing customer service, and corporate operations, and generating new insurance products while mitigating cyber threats. This finds that the Russian insurance business lags in terms of digitalization, with few companies embracing new technology despite major fraud and operational hazards (30).

Table 2: Most Cited Studies

Authors	Title	Years	Source Title	Citation
"Eling M, Lehmann M."	"The Impact of Digitalization on the Insurance Value Chain and the Insurability of Risks" (31)	2018	"Geneva Papers on Risk and Insurance: Issues and Practice"	161
"Schumann G J-P.; Moller D K."	"Microwave remote sensing of flood inundation" (32)	2015	"Physics and Chemistry of the Earth"	153
"Marsal-Llacuna M-L."	"Future living framework: Is blockchain the next enabling network?" (33)	2018	"Technological Forecasting and Social Change"	138
"Suryono R R et al.,	"Challenges and trends of financial technology (Fintech): A systematic literature review" (34)	2020	"Information (Switzerland)"	112
"Stoeckli E et al.,	"Exploring characteristics and transformational capabilities of InsurTech innovations to understand insurance value creation in a digital world" (35)	2018	"Electronic Markets"	103

Another interesting takeaway from Table 2, is all the sources of the study are Table 5, which shows the most prolific sources. This can be interpreted as a symbiotic relationship between the studies and the journals they published, as both the source and the study are getting recognized together.

Geographical Distribution of Article: Table 3 shows the list of top 10 countries, while Figure 5

shows the geographical distribution based on the total number of documents produced, with India [84 docs.] standing tall at the top seconded by the US [58 docs.], while the US has the most number of citations [953 citations], which shows that the quality of the works produced by the US has higher influence than that of Indian articles. This table reveals another interesting data, at the bottom of this given table stands Switzerland with 15 published documents and 390 citations, but having the highest total link strength of 80 which is the highest among the top ten most influential countries, this data will be very crucial in our network analysis coming in the later part of this article. These findings are consistent with previous research that has identified several of these nations as the greatest areas for Fintech innovation. Indeed, the United States boasts a powerful Fintech environment, while the United Kingdom is regarded as one of the greatest centers for digital companies. India has a diverse economy and a thriving Fintech sector, with over 2,000 Fintech businesses as of 2023.

Table 3: Most Influential Countries

Country	Documents	Citations	Total Link strength
India	84	710	32
US	58	953	16
Germany	46	321	28
UK	37	342	10
Italy	28	298	28
China	26	309	25
Russian Federation	22	71	8
Spain	16	270	16
Australia	16	164	2
Switzerland	15	390	80

At the European level, Germany [46 docs.] plays a significant role in the number of research published followed by the UK [37 docs.] and Italy [28 docs.], but Switzerland [390 docs.] still remains at the top with the highest number of citations. This shows the influence and the quality of the research they are conducting. Finally, the rise of Fintech start-ups in China is fuelled by a favorable regulatory environment that encourages technology businesses and is rapidly favoring the development of digital finance (36).
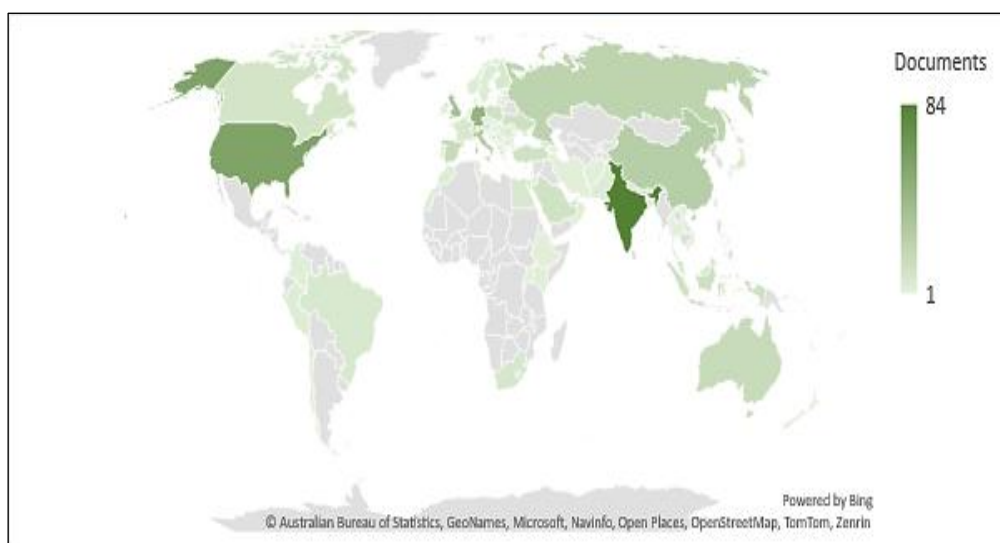
Figure 5: Geographical Distribution of Papers

Influential Sources: Table 4, shows the most cited sources within the sample, with 'Geneva Papers on Risk and Insurance; Issues and Practices" having most of the documents [8 docs.] as well as the most number of citations [249 citations] in the given list which shows its influence and impact on this given field of the research. It is seconded by "Technological Forecasting and Social Change" which has an almost similar citation number [245 citations] with two fewer documents produced, along with these 2 sources another significant source influencing this research is Sustainability (Switzerland) with 6 documents and 156 citations, to its name.

Table 4: Most Cited Sources

Name (Citation-wise)	Number of Docs.	Citations
"Geneva Papers on Risk and Insurance; Issues and Practices"	8	249
"Technological Forecasting and Social Change"	6	245
"Electronic Markets"	2	158
"Sustainability (Switzerland)"	6	156
"Physics and Chemistry Earth"	1	153
"Information(Switzerland)"	1	112
"Telematics and Informatics"	1	95
"Orthopedics"	1	88
"Journal of Adolescent Health"	1	84
"California Law Review"	1	78

The results reveal that the focus on the Insurtech issue comes not just from banking journals, but also from IT and electronics publications, emphasizing the necessity for a multidisciplinary approach for a thorough understanding of the phenomena (22). All of the journals are from various domains such as engineering, social sciences, and even law which shows the broad inter-disciplinary scopes of this area of the research.

Table 5, suggests that the number of documents is concerned with the "Lecture Notes in Networks and Systems" [15 docs] has the most number of documents followed by "Geneva Papers on Risk and Insurance(Issues and Practice)"[8 docs], while "Zeitschrift Fur Die Gesamte Vercherung Swissenschaft; Aida Europe Research Series on Insurance Law and Regulations"; "Big Data: A Game Changer for Insurance Industry" have 7 documents each, and "Sustainability (Switzerland)"; "Management for Professionals; Technological"; "Forecasting and Social Change"; have 6 documents each and followed by 5 documents by "Procedia Computer Science and Journal of Risk and Financial Management". The results reveal that the focus on the Insurtech issue comes not just from banking journals, but also from IT and electronics publications, emphasizing the necessity for a multidisciplinary approach for a thorough understanding of the phenomena (22).

Table 5: Most Prolific Sources

Source(most docs)	Documents	Citations
"Lecture Notes in Networks and Systems"	15	48
"Geneva Papers on Risk and Insurance (Issues and Practice)"	8	249
"Zeitschrift Fur Die Gesamte Vercherung Swissenschaft"	7	63
"Aida Europe Research Series on Insurance Law and Regulations"	7	26
"Big Data: A Game Changer for Insurance Industry"	7	45
"Sustainability(Switzerland)"	6	156
"Management for Professionals"	6	12
"Technological; Forecasting and Social Change"	6	245
"Procedia Computer Science"	5	19
"Journal of Risk and Financial Management"	5	61

Table 6 shows the authors with the most citations and the most relevant authors in this field of work. As this area of Insurtech has recently developed only a few authors are working in this domain, so there aren't many authors with large numbers of publications, with the highest publication count of an author being 4 each by Christan Eckert; Anjan

Chamuah, and Rajbeer Singh. The most cited authors are, Martin Lehmann; and Martin Eling, whose citation count of 161, closely followed by Delwyn K. Moller, and Guy J. P. Schumann, with 153 citations each, and Marsal-Llacuna, Maria—Lluisa with 150.

Table 6: Most Cited/Prolific Authors

Name	Documents	Citations	Name	Documents	Citations
Eling, Martin	1	161	Eckert, Christan	4	58
Lehmann, Martin	1	161	Chamuah, Anjan	4	24
Moller, Delwyn K.	1	153	Singh, Rajbeer	4	24
Schumann, Guy J P.	1	153	Bohm, Markus	3	73
Marsal-Llacuna, Maria—Lluisa	2	150	Krcmar, Helmut	3	73
Budi, Indra	1	112	Marano, Peirpaolo	3	73
Purwandari, Betty	1	112	Bhattacharyya, Som Shekhar	3	54
Suryono, Ryan Randy	1	112	Nayak, Bishwajit	3	48
Dremel, Christian	1	103	Grassi, Laura	3	48
Stoeckli, Emanuel	1	103	Lanfranchi, Davide	3	42
Uebernickel, Falk	1	103	Breitner, Micheal H.	3	24

Network Analysis

A network analysis was created to use the term cooccurrence to extract content information from the articles. The keywords indexed in published articles and those found in titles and abstracts are essential for locating pertinent topics in a research area, and this approach is especially well-suited to develop a subset of a topic (37-39). A co-occurrence network, also known as a semantic network, is a graphical representation that shows probable links between things, such as keywords, in textual content. This network is built by examining how frequently pairs of terms appear together in a given unit of text, such as an article or a set of documents. The linked phrases create nodes and edges in the network, which represent their co-occurrence associations.

VOSviewer 1.6.20 software was used to conduct the network analyses in this study. The VOS mapping approach enables it to map the keywords of texts using co-occurrence data (40). These maps enable the discovery of knowledge clusters within a wide study topic (22). The authors' keywords are shown in a network visualization in Figure 7, where the intensity of the links between the keywords is represented by the color, size of the circles, font size, and thickness of the connecting

lines (40). Related terms are often listed together, as indicated by the same color (41).

Co-occurrence of Keywords: To research the design of the Insurtech literature, the co-occurrence of the authors' keywords was examined, allowing us to discover the terms most often used in the sample articles. This study implies that there is a relationship between the concepts associated with those terms (41). The VOSViewer text-mining algorithm produces keyword maps. A circle depicts each keyword, the size of which is determined by how frequently it appears in the authors' keywords of the set of studies. A surrogate measure of the keywords' correlation is the distance between them (42), which will finally be depicted by the various colors of clusters formed by these keywords.

The frequency of recurrence of a particular phrase is reflected in the size (height) and font size of the nodes in the network (40). VOSViewer's most common cluster identifies worries about digital transformation (3).

Figure 6, shows a primary network analysis shows the most repeating keywords in this domain of the study which are, Insurance [120 freq.]; digital transformation [116 freq.]; insurtech [96 freq.]; blockchain [67 freq.]; artificial intelligence [49

freq]; and emerging technologies [47 freq.] to name a few.

Figure 6 shows insurtech as a keyword that emerged around 2021 as the colour visualization chart, along with other emerging keywords like blockchain, digital transformation, etc. At the same time, other keywords like Internet of things, regtech, and smart contracts followed quickly.
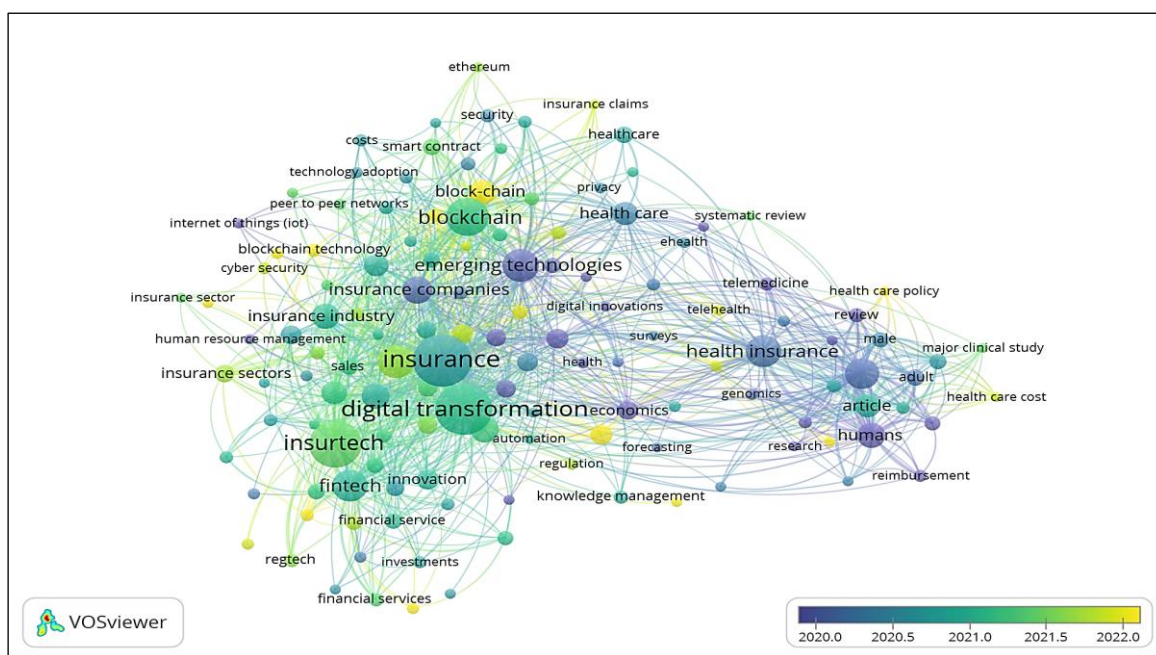
Figure 6: Keyword Co-occurrence Network

To further analyze the keywords, in a more microscopic view, new criteria have been put in the software (VOSViewer), where only the keywords that co-occurred more than 10 times are to be considered. However, this approach may have ruled out some of the emerging keywords in the process but gives a clearer view of the network. The view of the list is given below.

Table 7: Clusters of Author-Used Keywords

Cluster 1(Red)			Cluster 2(Green)		
Keywords	Co-occurrences	Total link strength	Keywords	Co-occurrences	Total link strength
covid-19	18	28	big data	25	46
digitalization	25	38	blockchain	56	88
innovation	16	30	digital transformation	74	59
insurance	57	96	healthcare	13	11
technology	15	35			
Cluster 3(Blue)			**Cluster 4(Yellow)**		
Keywords	Co-occurrences	Total link strength	Keywords	Co-occurrences	Total link strength
artificial intelligence	34	69	fintech	43	76
machine learning	13	27	insurtech	96	145
risk management	10	13	smart contracts	12	26
Cluster 5(Purple)					
Keywords	Co-occurrences	Total link strength			
insurance industry	10	10			
IoT	15	33			

Table 7, shows the clusters of the author-used keywords, also represented in Figure 7. The criteria is that the keywords have to co-occur for a minimum of 10 times. The sets are divided into 5 clusters, Red, Green Blue, Yellow, and Purple, in network visualization, with insurtech having the highest total link strength of 145 and total links of 15, and also being mostly co-occurred word in our sample co-occurring 96 times with other keywords like digitalization, blockchain, digital transformation, and fintech.

There's an interesting fact coming up through this network visualization diagram shown in Figure. 6 that the keyword "insurtech" has a strong link strength with "fintech" [29 link strength] and with "insurance" [27 link strength], and with "digitalization" [4 link strength] which is an interesting fact because AI integration in insurance is one of the key drivers of the insurtech along with "machine learning" [5 times] and "IoT"[6 times]. The network visualization is shown in Figure. 7, also shows a weak connection between "risk management", "machine learning", "smart contracts" "technology" and "IoT" as Table 7 shows their lesser number of co-occurrences, being, 10, 12, 15, and 15 respectively. The number of links of the words, "healthcare", "risk management", "machine learning", "smart contracts", "iot", "big data" and "innovation" are, 4, 8, 10, 8, 12, 11 and 8 respectively, with total link strength of them being, 11, 13, 27, 26, 33, 46, and 30.
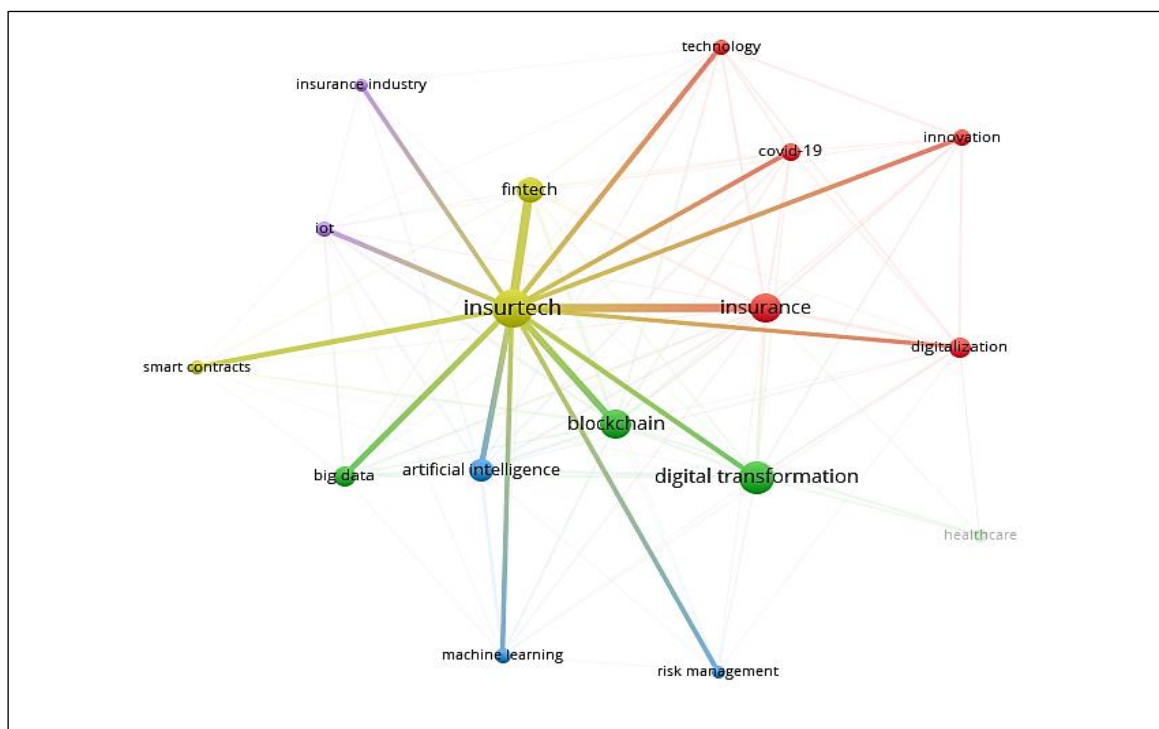
Figure 7: Network Analysis of the Autor Used Keywords (Min-10 Co-Occurrences)

However, the overlay visualization with weights being the year of publication of the article where the keywords have developed. Which is shown in the Figure 8. Which has a color panel from violet to yellow, with violet being the oldest and yellow testaments the keywords used in the latest studies. According to the pictorial representation of data shown in the Figure. 7, "artificial intelligence", "machine learning" and "covid-19" are the words incorporated in this domain of articles, while 'big data', "insurtech" and "IoT" are the words is in use for a while. However, keywords like "insurance", "fintech", "innovation", and "smart contracts" are not the new boys in the town anymore.
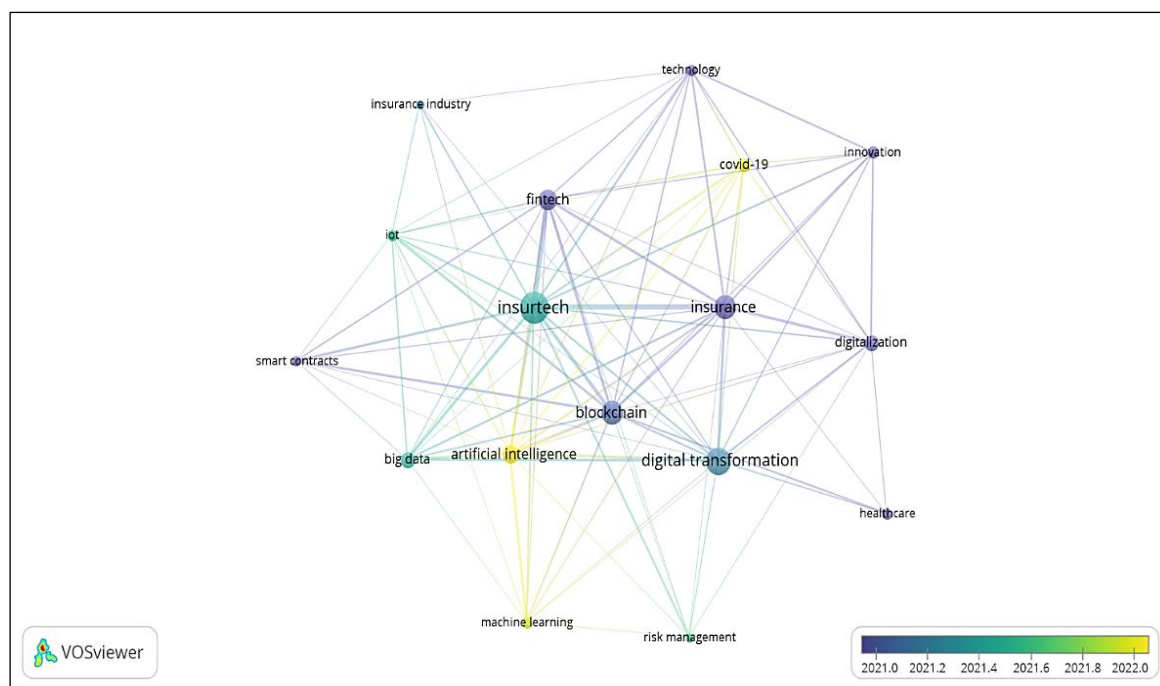
Figure 8: The Overlay Visualisation of the Thematic Clusters

Conclusion

This article has reviewed all the scholarly articles available till 25th of July, 2024, which were indexed in the Scopus database. The dataset that is used to analyze bibliographic data was 486 documents strong, mostly including scholarly articles. We can see a steady rise in the number of documents since 2017 [13 docs.], and it's still on the rise, as we can see 2018 doubled the number of documents to 28, and from then on we see 33 documents in 2019, 64 documents on 82, and 125 documents for 2022 and 2023.

India and the US are the most influential countries in terms of the production of research and being used as key source material in this domain of insurtech, closely followed by Germany, UK, and Italy.

"The Impact of Digitalization on the Insurance Value Chain and the Insurability of Risks" (31) is the most cited [161] article, in "Geneva Papers on Risk and Insurance: Issues and Practice", followed by "Microwave remote sensing of flood inundation", [153 citations] (32). Other important articles include, "Future living framework: Is blockchain the next enabling network?"(33) "Challenges and Trends of financial technology (Fintech): A systematic literature review" (34), and "Exploring characteristics and transformational capabilities of InsurTech innovations to understand insurance value creation in a digital world" (35), having 138, 112, 103 citations respectively.

Some of the influential authors in this domain are, Eckert, Christan [4docs and 58 citations], Chamuah, Anjan and Singh, and Rajbeer [4 docs, and 24 citations] each, while Eling, Martin, and Lehmann, Martin have 1 document and 161 citations each. The emerging keywords and areas of research in this domain are regtech, smart contracts, blockchain technology, and its probable application in insurtech. IoT and telematics are also the key areas where the researcher can explore the domains. This subject area of insurtech is still at an exploratory stage, there are big scopes of development in the areas contract-making process, which can be made a lot easier and the regulation technology [Regtech] can be intertwined, and new areas can be discovered there for the consumer satisfaction, while keeping data privacy issue in mind. Insurtech is still a newly coined word (43), which has options to link with sustainable development goals. These dimensions of research will not only help consumers with more affordable policies but also give the insurers new horizons to cater, to and develop new products. These growing scapes will also have certain drawbacks as the initial cost of implementation will be high, and employee adoption of the new system also lead to further management research. While the data based

system will possess a threat of cyber-attacks and data breaches, which will require both technical and legal research. Legal and policy research will further help the policymakers and jurisdictions to maintain the balance in the whole insurance ecosystem.

Based on the geographical distribution of publications, European nations are contributing to this research domain, but there isn't any significant contribution from the Latin American countries as well as the African countries. In Asia, the most influential country in the domain of insurtech is India while China is catching up. There are certain

significant research articles by Japan, Singapore, and Indonesia, but the volume is very low, these countries have to come up with more influential ideas in the domain. More contributions from these countries will significantly bridge the knowledge gap in the domain of insurtech. Although there has been significant investment in the adoption of technology in the insurance sector according to various reports of BCG and Mckinzee, this still remains a frontier research area. More contributions from various aspects and countries will open up various frontiers in this subject.
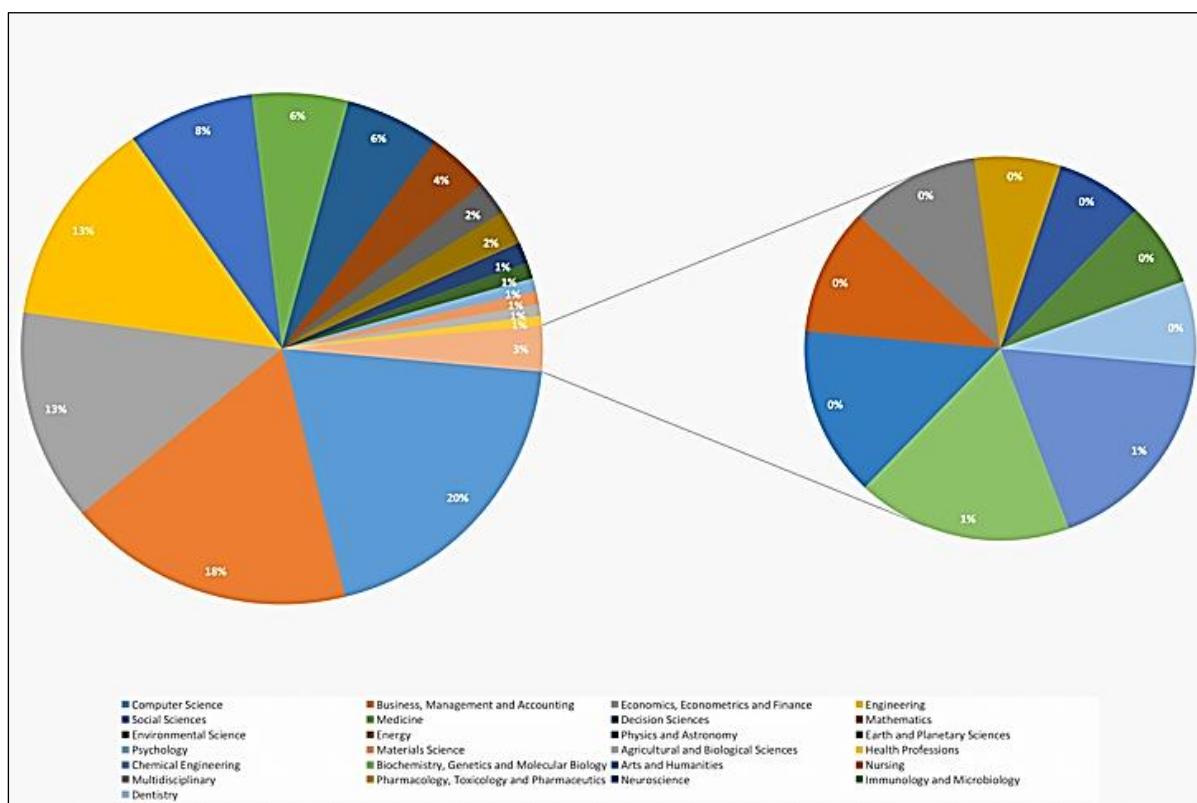
Figure 9: Interdisciplinary Scope of Insurtech

Figure 9 shows that the research on the domain is mostly constituted of articles from the subject areas of Computer Science, Engineering, Economics, Finance, and Management, but there are many other disciplines like Psychology, Mathematics, and environmental studies, data science, are chipping in this stream of study, which signifies the wide-open scope of the domain and various ways to contribute in it. Figure. 9 shows the distribution of the article in this domain from various subject areas. This shows the multi-disciplinary scopes of the subject. There isn't only an increase in the number of articles every year, according to a study, but an increase in the average

number of authors per manuscript. To some extent, this pattern suggests increased collaboration among writers in the area. According to co-citation, the partnership resulted in four major themes: InsurTech development, the FinTech environment, Insurtech effect, and Insurtech's SDGs (3). Despite the insight this research provides, it is not free from its limitations. The data used in this article is collected from Scopus, which is definitely one of the most widely used databases, but still, it doesn't possibly contain all the documents published in this context (22). The bibliometric data from scientific databases such as Scopus and Web of Science are not

prepared solely for bibliometric analysis and hence may contain inaccuracies, which are certain to impact any study done using such data (23). Given that bibliometric analysis is quantitative in nature, the link between quantitative and qualitative outcomes is sometimes ambiguous. Thus, bibliometric studies can only provide a short-term prognosis of the research field, preventing researchers from making bold claims (23). Another possible drawback of this research is it contains data till 2023 and documents from 2024 are not considered here, because of the reasons given above, but that opens up a gap to identify newly coined keywords and trends coming up in 2024.

Abbreviation
Nil.

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All authors accept the responsibility for the contents of this document.

Conflict of Interest
The authors declare that there is no conflict of interest.

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