

Insurance Innovations as a Part of the Financial Inclusion

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Abstract

This paper summarizes the arguments and counterarguments within the scientific discussion on the main trends in insurance innovations. The research's primary purpose is to identify the place and role of insurance innovations in today's financial services market. Systematization of literary sources and approaches to solve the problem of introducing innovative processes in the insurance business development demonstrated that today in the conditions of global digitalization, the direction of insurance tech development is gaining popularity. The paper draws a parallel between the level of financial literacy of the population, as its ability to perceive new financial products and services, and financial inclusion, as a willingness to be an active user in the financial services market with the popularity of insurance policies for both life and non-life insurance. Research conducted by the World Bank in 2014 and the International Monetary Fund in 2019 did not reveal a direct relationship between the level of financial literacy of the population and the level of activity in the use of insurance services. At the same time, there is a high rate of growth in the dynamics of insurance services (non-life insurance in particular) in countries where there is an active process of development of innovative digital technologies (China, India, Taiwan, Japan). The research methods' methodological tools were analytical tools of the Scopus database and VOSviewer software years of research during 2012 - 2021. According to the international Scopus database results, the object of study is the chosen countries, regions, and industries. The paper presents empirical bibliographic analysis results, which showed that today most research is conducted by experts from the USA (more than 800 publications), Great Britain (more than 150 publications), India, and China (more than 120 publications), and Germany. These countries, especially China and India, demonstrate the rapid development and introduction of innovative digital technologies in the insurance sector. The research empirically confirms and theoretically proves that insurance innovations are an integral and integral part of the financial sector as a whole. In addition, the main vectors of development of innovative co-concept in the field of insurance are highlighted: machine learning, forecasting analytics, consumer protection system in the information space, the concept of “unstructured data”, artificial intelligence, blockchain technology, telematics. The results of the research can be helpful for further scientific work.

Keywords: Insurance, Insurance Market, Financial Literacy, Financial Inclusion, Insurance Innovations, Insurance Tech.

JEL Classification: G22, O32.

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Introduction

It is impossible to imagine the modern financial market without a variety of digital technologies. The Big data concept is one of the perspectives and differentiated directions of innovation development for insurance companies. Personal financial and actuarial data about the client, data about claims, risks, manufacturers, etc., form the basis for almost every critical insurer's decision. Insurance companies often deal with large consumers and commercial consumer groups, each with large data sets, different types, and attributes. Today, the industry has made significant progress in capturing and analyzing much of the structured information related to products and policyholders. Agents, brokers, underwriters, claims managers, call-center representatives, manufacturers, wholesalers, and many other employees working in the front and back offices of insurance companies are not always ready to learn the complex process of data processing. Therefore, it is crucial to properly formulate directions for the innovative development of insurance companies and the financial sector as a whole.

Literature Review

It is necessary to reorient the activity of modern insurance companies in the conditions of active digitalization processes to the so-called soft needs of consumers. The offer of innovative technologies and products on the market today is so broad that the consumer sometimes lacks the knowledge and skills to master these innovations (Ciubotariu et al., 2019; Ianchuk, 2021). This thesis applies to all areas of the financial sector - banking (Agnihotri & Gupta, 2019; Dudchenko, 2020; Goncharenko, 2020), investment (Kljucnikov & Majkova, 2018), insurance (Molotok, 2020; Didenko & Sidelyk, 2021), microfinance (Abeysekera, 2020; Popoola et al., 2019) and others. Adjusting for balanced interaction between these sectors (Bozena & Vynnychenko, 2018; Moskvicz, 2019) is a prerequisite for stabilizing the financial situation (Singh, 2021) and the macroeconomic situation in the country as a whole (Zolkover & Renkas, 2020; Bagmet & Haponova, 2018).

When it comes to the insurance market, the issue of financial literacy of the population, as its ability to absorb new financial products, and financial inclusion, as a willingness to be an active user in the financial services market. In this context, there are many scientific developments. In particular, these are the works of (Gatsi, 2020; Rehman, 2020; Mihalcova et al., 2020; Korcsmaros et al., 2019). Over the last decade, many scientific papers have appeared on the concept of big data and its implementation in various areas of human activity (Delanoy & Kasztelnik, 2020; Giebe et al., 2019; Njegovanović, 2018). The works of such scientists as Porrini, 2018; Starostina et al., 2020; Umadia & Kasztelnik, 2020; Yanyshyn et al., 2019; Keliuotyte-Staniulienė & Kukarėnaitė, 2020; Vargas-Hernández & Rodríguez, 2018 considered a wide range of supply of innovative products and services in the field of insurance.

Methodology and Research Methods

This study used such methods as analysis, synthesis, generalization, and tabular and graphical data presentation methods. The information base of the research is the data of the international database of scientific publications Scopus. Every year more and more countries worldwide join the process of assessing the level of financial literacy and financial inclusion of the population. Usually, all research is based on the methodology proposed by OECD experts, which allows for a comprehensive assessment of the financial literacy of the adult population. This study is to fill out a specially designed questionnaire. This questionnaire currently exists in the third edition. Thus, its authors improve the wording of the questions to achieve better accuracy of the survey results. This questionnaire consists of several blocks: Personal and household characteristics, Planning and managing finances, Choosing and using financial products and services, Attitudes and behavior, Financial knowledge, Background information. Each block includes a set of diverse questions. By answering these questions, respondents can assess the level of financial knowledge, financial behavior, and financial attitude. Each question is evaluated on an appropriate scale.

The maximum score that a survey participant can receive is 21. The distribution of points is as follows: financial knowledge – 7 points, financial ratio – 5 points, financial behavior – 9 points. Issues related to the use of insurance products, consumer awareness of the principles of insurance are also included in this questionnaire. They are taken into account when forming a comprehensive assessment of the level of financial literacy. According to a 2014 World Bank study, more than 3.5 billion adults worldwide have low levels of financial literacy. In other words, only 33% of the world's population is financially literate. The world map with the level of financial literacy is as follows (Fig. 1). More than 55% of the adult population has the appropriate level of financial literacy in the United States, Canada, Australia, and Western Europe. The vast majority of Central and Eastern European countries are characterized by an average level of financial literacy of the adult population - this figure ranges from 35% to 44%.

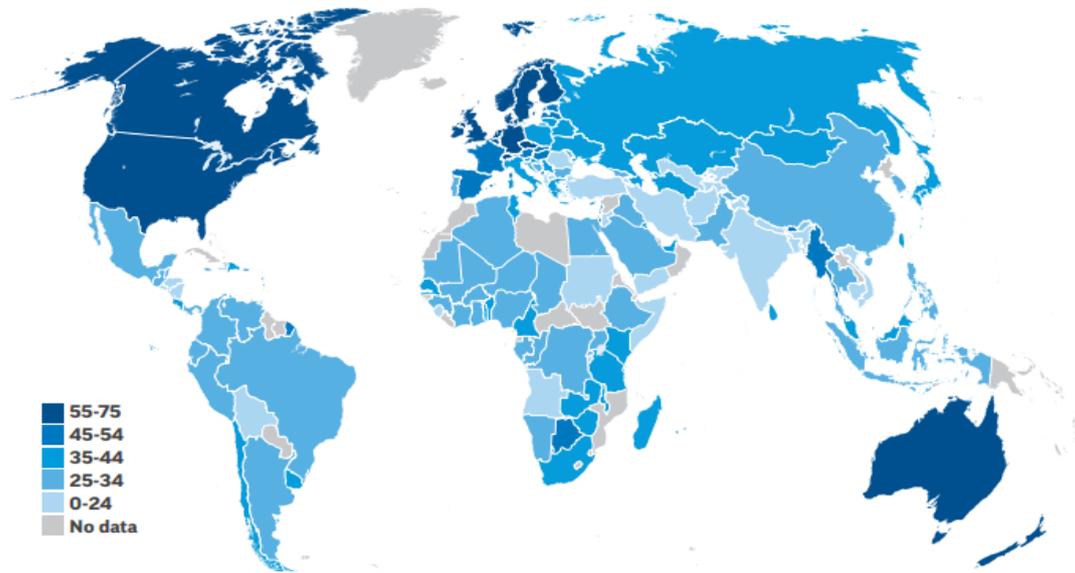


Figure 1. Map of Countries Redistribution According to the Level of Financial Literacy of the Population, 2014

Sources: S&P Global FinLit Survey

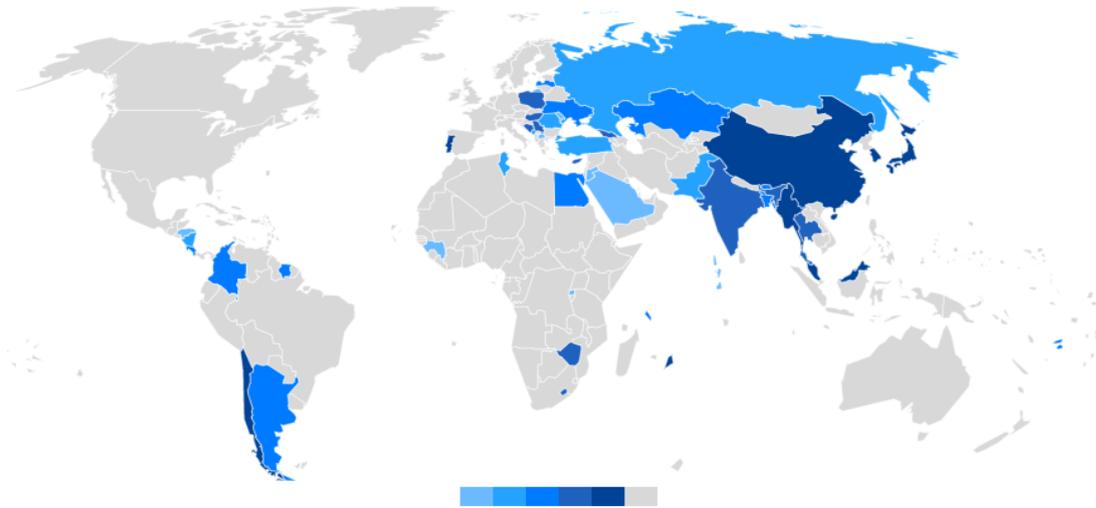


Figure 2. Map of Countries Redistribution by the Number of Life-Insurance Policies per 1,000 Adult Population, 2019 (Countries With No Data Are Marked In Gray)

Sources: IMF

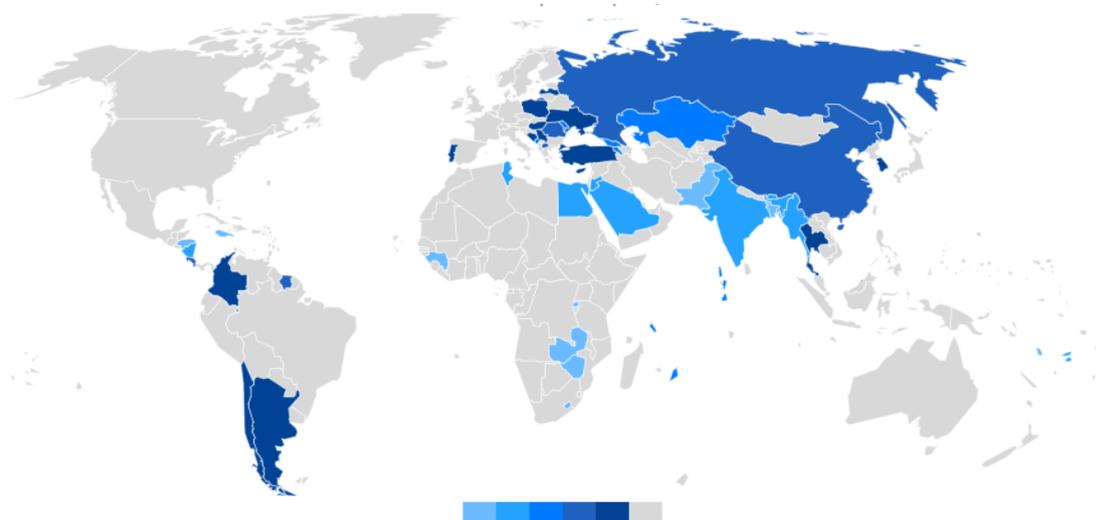


Figure 3. Map of Countries Redistribution by the Number of Nonlife Insurance Policies per 1,000 Adult Population, 2019 (Countries With No Data Are Marked In Gray)

Sources: IMF

From the presented maps (fig. 2, 3), we see that the highest life insurance use is observed in China, Japan, Indonesia, Thailand. This picture is undoubtedly aggravated by the aggravation of the situation associated with the spread of COVID-19, as all recent trends indicate the promotion of nonlife insurance. The confirmation of the latter thesis is a map of the world, which presents the intensity of nonlife insurance policies. As you can see, it is impossible to draw a clear parallel between the level of financial literacy of the population and the activity of using insurance services. Still, the growing popularity of nonlife insurance is primarily due to the active development of digital technologies in this area.

Results

The digitalization processes of society worldwide popularize innovative digital technologies in the financial and insurance sectors. Confirmation of these words results from the biometric analysis of publications indexed by the international database Scopus and the English-language program VOSviewer. The research was performed on the following keywords: insurance tech, insurance technologies, and insurance innovations. In total, more than 7,000 publications were received on a given topic: 75 on insurance tech, 1,696 – insurance technologies, and more than 5,000 publications with the phrase insurance innovations. As you can see, the use of the phrase insurance tech is only gaining popularity today. The first publication with this category appeared in 1972. After that, this concept was mentioned several times, and since the 2000s began to be used more actively by researchers in their work. This concept is most often mentioned in their scientific publications in the USA, China, Great Britain, Russia, and Germany. In terms of thematic categories, the concept of insurance tech is mentioned in research in the field of economics (16.2%), business and management (13.1%), computer science and engineering (10.8%), social sciences (10%), social sciences (10%) (Fig. 4).

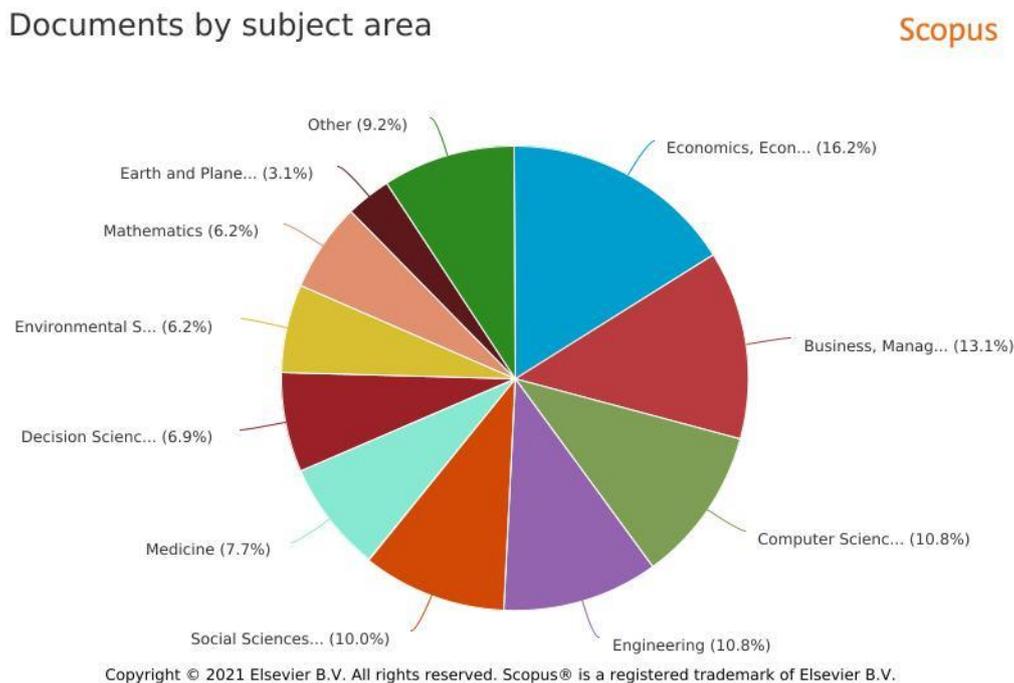


Figure 4. Documents by Subject Areas, 2012-2021

Sources: Scopus

Given the increased level of interest of the world community in the concept of insurance innovations, we will dwell on it in more detail. As already mentioned, today, in the scientometric database Scopus there are more than 5 thousand scientific papers on this issue. Confirmation of the significant and constant (without noticeable fluctuations and changes in trend) interest of scientists worldwide is the dynamics of the number of publications on this topic during 2012-2021 (Fig. 5). The number of publications on insurance innovations did not fall below 150 works per year during the study period. In contrast to the activity of the use of the phrase insurance tech about insurance innovations are actively written in the United States (more than 800 publications), Great Britain (more than 150 publications), India and China (more than 120 publications), and Germany (more than 100 publications) (Fig. 6). Other countries, the Netherlands, Australia, Canada, France, and Switzerland, have less than 100 publications in their collection, but this level is very high compared to other countries. As you can see, among the countries that are leaders in the level of interest in insurance innovations, all countries except India and China belong to countries with a high economic development rate

due to high rates of growth and introduction of innovative digital technologies. However, China and India are also not in vain in this list of countries, as these countries are the world's leading drivers of direct technical implementation of various digital technologies.

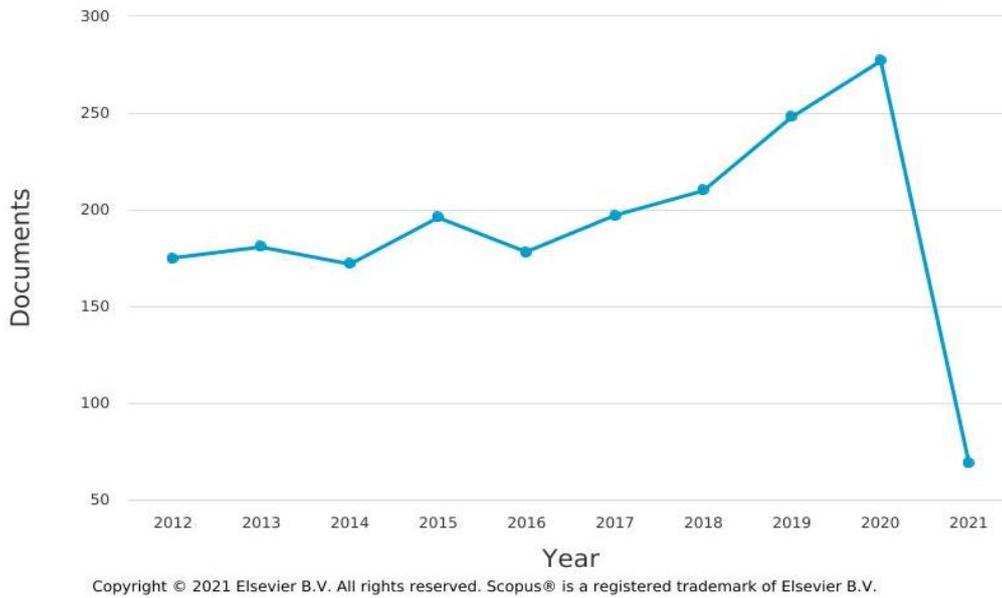


Figure 5. Documents by Years, 2012-2021

Sources: Scopus

The level of financial literacy of the population in these countries (except India) is at medium or high levels, which indicates the increased interest of the scientific community in the problem of innovation in insurance not only in their countries but also in countries with insufficient financial awareness.

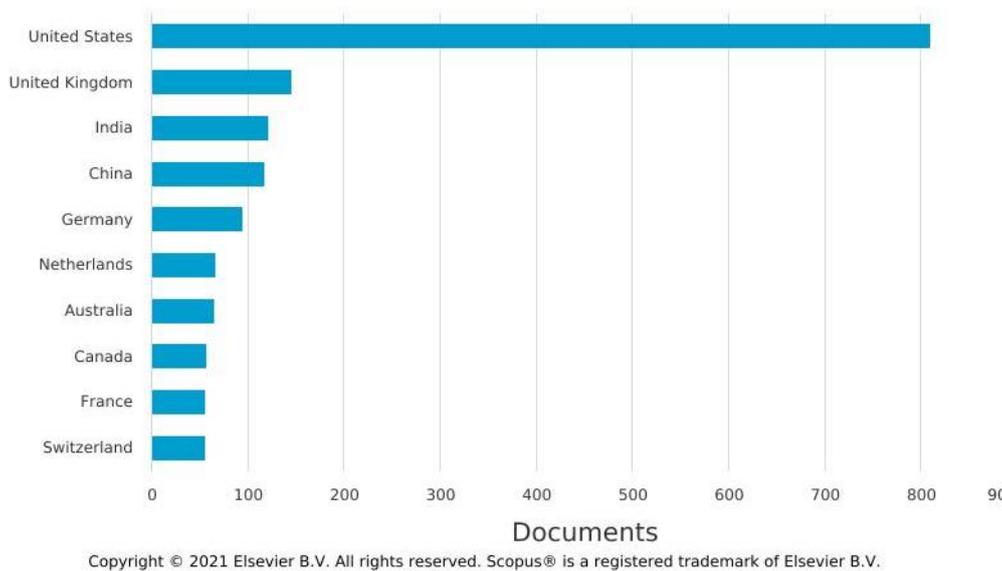


Figure 6. Documents by Country/ Territory, 2012-2021

Sources: Scopus

It is also worth noting that the authors of one scientific work often work in a conglomeration and represent different educational and scientific institutions and countries. Such scientific cooperation allows adjusting the whole system of scientific relations between different countries. Figure 7 shows the links between countries in conducting research on the study of various areas related to insurance innovations.

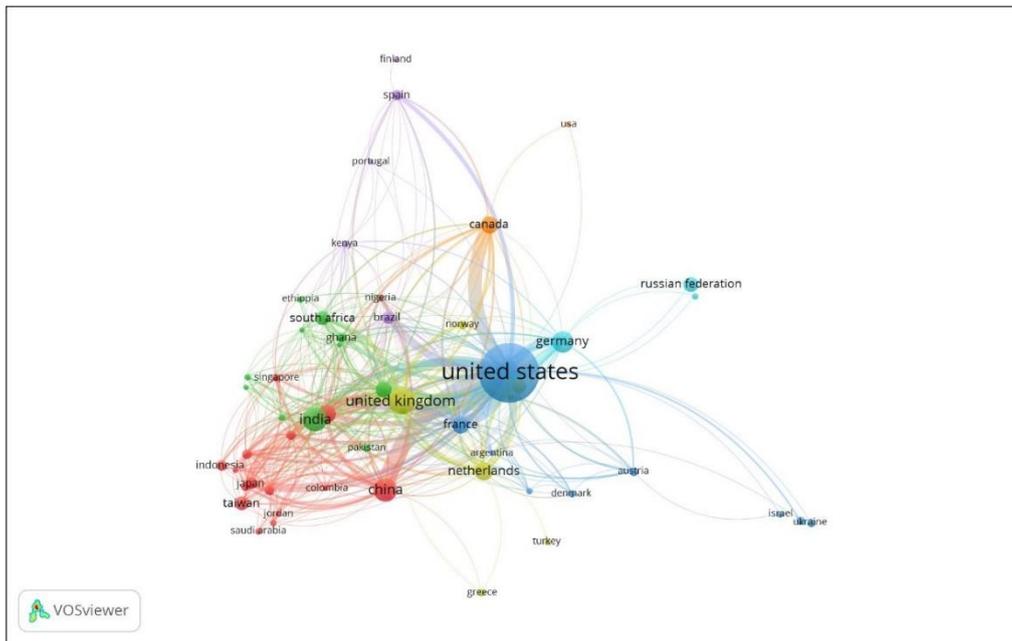
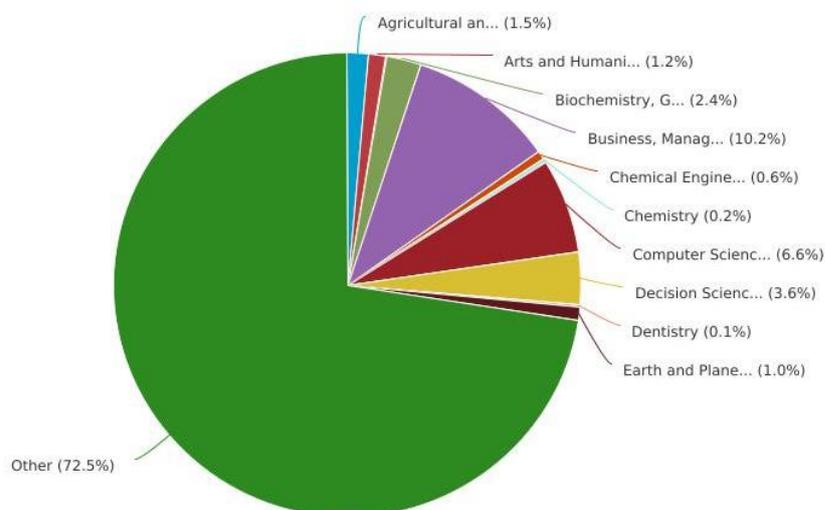


Figure 7. Geographical Analysis of Publishing Activity in the Scopus Scientometric Database on the Topic of Insurance Innovations as of 2021

Sources: Developed by the author based on VOSviewer

After analyzing Figure 7, we can conclude that cooperation between countries is quite common. Each country is marked with a corresponding color and has a line connection with other countries. The thickness of the lines indicates which countries cooperate more often than others. Given the clustering results, the United States is at its center. It has the closest ties with Canada, Germany, China, the United Kingdom, India, and Spain, as evidenced by the broad link. In total, there are four clusters of countries: the first cluster includes Asian countries (China, Indonesia, Japan, Taiwan, Saudi Arabia, Palestine); the second cluster consists mainly of countries on the African continent (Ethiopia, South Africa, Ghana) and India; the third cluster includes Western European countries (Portugal, Spain, Finland) and several African countries; in the fourth cluster is the United States and several European countries (Germany, Russia, Austria). Like the search query insurance tech, it is also necessary to identify the main areas in which insurance innovations are mentioned (Fig. 8). As you can see from the presented pie chart, it is impossible to define which area insurance innovations are most often discussed clearly. The largest segment corresponds to the category of Others (72.5%). Among other areas, insurance innovations are mentioned the most in the scientific fields of Business and Management (10.2%), Computer Science (6.6%), and science related to decision making.



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Figure 8. Documents by Subject Areas (Insurance Innovations), 2012-2021

Sources: Scopus

The use of so-called “unstructured data” is also a type of innovation. “Unstructured data” is data collected from unofficial sources: social networks, various multimedia content, written reports, etc. Thus, you can collect personal information about the client, which allows you to understand his interests better and form an individual package of insurance services. Another popular innovative tool in the field of insurance is artificial intelligence. It is a valuable tool in the big data space, as it acts as a central energy host, characterized by powerful automated processes. This helps to increase the speed of working with customers, optimize workflows, generate new approaches. Blockchain technology is also being actively introduced in insurance. Because this type of data does not deteriorate in part, it is a convenient and secure way to transfer data between the client and the insurance company. Telematics is an innovative sensor technology designed to collect and transmit data in real-time over long distances. This technology is already actively used in car insurance when the owner can choose a personal data analysis plan and choose the most profitable insurance policy with the lowest premiums.

Conclusions

Thus, following the purpose of the study, which was to identify the place and role of insurance innovations in the modern financial services market, a thorough analysis of current research indexed in the international scientometric database Scopus. According to the investigation results, it was found that the concept of insurance tech is only gaining popularity today. Modern scientists have actively studied the categories of insurance technologies and insurance innovations for the last twenty years. It was found that insurance innovations are actively written about in the USA (more than 800 publications), Great Britain (more than 150 publications), India and China (more than 120 publications), and Germany (more than 100 publications). Other countries, the Netherlands, Australia, Canada, France, and Switzerland, have less than 100 publications in their collection, but this level is very high compared to other countries. As you can see, among the countries that are leaders in the level of interest in insurance innovations, all countries except India and China belong to countries with a high level of economic development due to high rates of growth and introduction of innovative digital technologies. Despite the positive dynamics of changes in the number of insurance policies for non-life insurance, keyword clustering has shown a still high level of public interest in life insurance, which is caused, among other things, by the increased risks to life that exist today in the aggravation of the condition of the situation in the world with COVID-19. In addition, the main vectors of the concept of innovation in the field of insurance are identified: machine learning, forecasting analytics, consumer protection system in the information space, the idea of “unstructured data”, artificial intelligence, blockchain technology, telematics.

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