
The transformation of the insurance market under the influence of financial digital technologies

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Abstract: The article deals with the peculiarities of the transformation of the insurance market in the context of digital financial technology. The presented research allowed to define the content of digitalization and to study the peculiarities of its impact on the functioning of insurance market. The following is a brief history of how the insurance industry has been transformed in the course of human social development. It is determined that meeting the challenges of digital transformation in the insurance industry creates an ecosystem in which participants can interact effectively, improve information transparency and the quality of analytical data, optimizes insurers' business processes and attracts a wider range of insurance services to the online environment. It is noted that financial science and insurance education are critical in the transformation of the insurance market. A number of positive factors that influence insurance behavior in the context of the digital economy are substantiated and the expediency and necessity of wide use of modern information and communication technologies in the organization of insurance coverage is not only a global trend, but also a proven reality of today.

Keywords: insurance market, digitalization, financial market, digital economy, digital technologies.

1. Introduction

The digital transformation of the national economy is a consequence of the comprehensive development of the insurance market and the insurance institute, which provides an opportunity to improve business models that are successfully applied in practice. Artificial intelligence, remote

claims settlement, digital insurance services and advanced financial technology are prerequisites for expanding distribution channels of insurance products for policyholders. Advances in the digitization of the insurance market have a significant impact on fair competition and lead to greater efficiency in the insurance business. A study on the impact of digitization on insurance market development has global social and economic implications. The insurance market is very sensitive to the impact of digital technologies and needs to transform its business processes to meet changing insurance priorities.

Digital technologies and their effective implementation contribute to the development of transformational processes in the insurance market as a result of the emerging potential for competition at the global innovative technological level, while ensuring information security at the global level. Digitization of the insurance market contributes to the improvement of the quality of policyholder coverage and the development of the insurance business, and serves as a priority task for the further implementation of digital technologies in the insurance industry [1]. The digitization of the insurance market depends on stable and efficient financial markets. In the digital economy, insurers have the opportunity to use financial technology to personalize their insurance product offerings. In this regard, the development aimed at providing digital insurance products and the application of new technologies in the context of the digitalization of the economy is becoming a relevant area of innovation for native insurance companies.

2. Object and subject of research

The subject of the research is the insurance market and the process of the influence of digitalization on the development and transformation of the insurance industry.

3. Target of research

The purpose of the study is to analyze the impact of social development on the insurance market, to study the peculiarities of the digital transformation of the insurance market of Ukraine.

4. Literature analysis

Despite the multifaceted nature of scientific developments in the area of digitization of the insurance market and its transformation in the context of the development of digital technologies, there are still many issues that require further research. The essence of the economic concept "digitalization" was considered in the writings of many Ukrainian and foreign researchers. Among them, it is appropriate to highlight: M. Mikhrovska [2], O. Abakumenko, A. Derkach, M. Kornieieva, O. Huseva, S. Legominova and others. Aspects of the transformation of the insurance market were studied by such scientists as M. Demianchuk, K. Hurzhyi [5], M. Malovanyi, O. Prokopchuk, Yu. Ulianych [4, 6]. The influence of digital technologies on the functioning and development of the financial system was studied by H. Azarenkova and I. Shkodina [8]. Despite the diversity and thoroughness of scientific research on the peculiarities of the digital transformation of the Ukrainian insurance market, there are many unresolved issues that require further research.

5. Research methods

For the scientific solution of the goal set in the article, general scientific methods of scientific knowledge and research of economic phenomena are used. The theoretical and methodological basis of the article is primarily the research works of native scientists and practitioners, as well as foreign scientists who are engaged in researching the peculiarities of the application of digital and Internet technologies in the insurance business and transformation of the whole industry. The following

research methods were used in the article: abstract-logical, comparison, monographic, graphic and scientific generalization.

6. Research results

In the process of adapting the insurance market to the challenges of modern society and the digital space, it is necessary to identify the advantages of insurance in the context of the development of the insurance business on the one hand, and on the other hand to develop a progressive scheme of insurance relations between policyholders and insurance institutions, considering the transformative effects of digital financial technologies on the insurance market.

All the terms (digitization, digitalization, digital transformation) refer to processes occurring in the system through digital technologies that lead to transformational change. The difference between them lies in the nature of the change itself. Whereas digitization is simply the transition from paper-based to paperless, digitalization is about automating most management processes and making communication between a company and its customers more convenient and faster. In the case of digital transformation, it is about moving to a new level of mutual understanding, when qualitative rather than quantitative indicators come to the fore [2]. Digital transformation is undoubtedly the implementation of digital governance, which is spreading very rapidly around the world and has been recognized as a top priority for all developing countries, according to the UN [3].

Digital technology is a new and dynamic trend that is leading to large-scale transformational changes in the insurance industry around the world. For participants in the insurance market, the development of digital technologies leads to the need to modify approaches to insurance, constant monitoring, adaptation to new technological achievements, as well as changes in the way of interaction between the insured and the insurer. Digitization is the foundation on which digital transformation is built. Digital transformation itself is a complex process of transformations based on the use of digital technologies; it involves a fundamental rethinking of how an insurance company works and how it interacts with the environment. This is not a one-time action, but rather a complex process covering all stages of this type of activity, which can be effectively implemented by applying the principles of strategy and planning [4].

World experience shows that the development of insurance passed a rather long period, starting from VII-X thousand BC to the present state (Table 1).

Table1. Impact of social development on the insurance market

Development of society and economy	Development of insurance
VII-X BC	
Origination of insurance principles in the ancient world	Arrangements for relative and joint compensations
Ancient times (Antiquity)	
Markets are created, commodity-money relations develop, a single convertible system of measures and weights is created	The concept of the distribution system of insurance appears, which was reflected in the ordinance - a legislative act of that time (916 BC)
Ancient Rome (V - I BC)	
The emergence of social classes contributed to the birth of trade unions, which included artisans, workers of various professions	The advent of insurance societies was created to protect the property rights of those who enter into contracts
Middle Ages	
Decline of economic systems in Western Europe. Trade is maintained only with Arab countries	The decline in trade leads to the curtailment of insurance activity. Third parties become members of insurance unions.

XVIII century	
Agricultural technology and agriculture were improved. A stable union of the landed and financial aristocracy led by the monarchy was formed.	The first insurance companies were established, the functions of which included life and civil liability insurance.
Capitalist system	
Adam Smith defined the value of goods by the amount of labor	The first insurance policy has been issued
XIX century	
Active development of industry, transport, communication, internationalization of production	A new industry has appeared in Europe - liability insurance, in particular compulsory
XX century	
The rapid development of industry, the introduction of various kinds of progressive technologies in all sectors of the economy	The development of the reinsurance sector, the general globalization of the insurance market, insurance products are invested in the economy
XXI century	
New technical revolution.	Formation of a network of institutions that create the infrastructure of the insurance market, cyber insurance
Platform economy	
New digital technologies are emerging, digitalization of the economy	Reviewing the principles of insurance relations, the idea of ecosystems appears, much attention is paid to the development of behavioral economics and its impact on the insurance industry

Source: summarized by the authors [7,8,12]

According to the summarized information presented in the table, the evolution of the insurance business took thousands of years from the primitive and was transformed according to the development of society, the economy and under the influence of external factors and the emergence of new trends.

In the 21st century, the technological revolution has resulted in the formation of a network of institutions that contribute to the creation of the insurance market and cyber insurance infrastructure. All this led to the birth of the platform economy and the emergence of digital technologies, resulting in the digitization of the economy, the idea of creating an ecosystem on this basis, and the revision of the insurance-related principles in the insurance market.

The platform economy is based on the latest technologies (integrated use of the Internet, informatization and digitization), with speed, convenience and the possibility of remote access being high priority factors. All of these have given impetus to social transformation in society, having a profound impact on consumers and service providers, including insurance services, and leading to fundamental changes in social spheres and national economies.

The advent of digital technology has brought about a social transformation, a change in insured characteristics, which requires a review of insurance pricing principles as a result of changes in the parameters that characterize the stability of insurers. A decisive role in this is played by the financially justifiable pricing of insurance products and the formation of insurance and reinsurance funds.

Modern society has faced a new industrial revolution and technological innovations (machine learning - AI, Blockchain, Crypto, Internet of Things - IoT). The change in society, its existence in the new digital reality is becoming more and more obvious. A new generation of people is born and brought up in conditions of technological progress, a high level of development of the electronic industry and the increasing speed of obtaining information (generation Z and generation A) [10].

From this point of view, a more flexible type of relationship emerges in the form of partnership cooperation, forming an innovative corporate culture (a high level of recognition, initiation and implementation of innovation) [10]. The application of materials that have been converted to electronic form (digitized) and materials of digital origin has made it possible to use digital tools in economic research, especially large datasets, and economic theory with a digital character further contribute to the formation of a new concept.

Issues of the development of the global digital economy are considered at the international level. In the countries of the European Union, *the Europe 2020 strategy* has been developed, among the main tasks of which are the creation of a single digital market, digital modernization of labor markets, and a reduction in the level of social isolation [11].

The German project *Industrie 4.0*, which is part of the *Europe 2020 strategy*, which was presented at the exhibition in Hanover back in 2011, is aimed at implementing the concept of *Smart Manufacturing* taking into account the global industrial network of the *Internet of Things and Services* [10]. Such a system makes it possible to increase the quality, flexibility and reliability of all operations in the insurance market. In Great Britain, a digital development strategy (*Digital Strategy*) is presented, which outlines the main directions of the development of the global digital economy, in particular, the construction of digital infrastructure, the development of digital business, the creation of digital technology training centers, ensuring the safety of digital interaction and the accessibility of the Internet, increasing the level of digital interaction on insurance market, including by expanding electronic channels.

The implementation of insurance services is a significant incentive for the development of voluntary insurance, and the digitalization of insurance can have a positive effect, first of all, in the motor insurance segment, which is the most massive business process, which is defined in detail by native insurance legislation and regulations. Solving tasks aimed at the digital transformation of the insurance sector stimulates the formation of an ecosystem for the effective interaction of its participants, increasing information transparency and the quality of analytical data, optimizing the business processes of insurers, and attracting a wider range of insurance services to the online environment.

The vast majority of native insurance companies use new digital technologies in the process of communication with insured persons. According to surveys, the most commonly used technologies are the Internet system (organization of personal accounts, chats, etc.) and electronic document management. In addition, priority digital technologies are used, such as production technologies (for example, telematics, telemedicine), internetization of business processes, large data sets, and artificial intelligence technologies. At the same time, the level of implementation of digital technologies in domestic insurance companies is insignificant due to the low level of development of digitalization of insurance activities, the high cost of new digital technologies, the lack of demand for digitized insurance programs and insufficient adaptation of digital technologies for insurance services, despite the positive impact of digitalization on the insurance market.

The results of the analysis demonstrate a number of positive factors that influence insurance behavior in the digital economy (Table 2).

Table2. Transformation of insurance behavior under the impact of digitalization

Factors	Technologies	Impact
Social trend	<ul style="list-style-type: none"> - virtual communication; - information, electronic and mobile technologies; - internetization; - robotization; - online - payment 	<ul style="list-style-type: none"> - change in the shape of society communication; - change forms, terms and conditions Information exchange; - complete lack of routine; - provision of financial services; beyond time and place.

Changes in insured characteristics	- digitization of insurance products; - telematics	- incentives to use new types of insurance products; - stimulation of the provision of data to insurance institutions
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Source: developed by the authors [14,15].

Digital technologies have a positive effect on optimizing production processes, streamline information flow, and help organize information, perform predictive modeling using large data sets, and create new types of insurance products.

With the application of digitalization of the insurance market, there is a need for constant monitoring of the client using the latest technologies, conducting scoring calculations, while using data from his credit history and applying algorithms to create targeted advertising of insurance products. Digitalization provides the quality of interaction between policyholders and insurance institutions at all stages, search for new distribution channels, and use financial technology, taking into account the functions of the largest number of specific policyholders, provides the insurance business with the opportunity to develop insurance products taking into account new customer expectations for insurance. In the context of new technology applications, existing channels for the sale of insurance products are being supplemented with new types. The compliance of accounting methods with the noted trends can be assessed by analyzing existing online services. Among them are various sales channels and services designed to process the purchase of insurance products, various payment systems and services that allow policyholders to make claims in the event of an accident with signs of insurance. Some progressive developments are already actively used by business entities. However, the insurance market remains at the stage of management methods, choice of implementation option, creation of legal fields, development and use of electronic platforms at the legislative level [12]. The application of electronic technology in the insurance market is evident in the use of new sales channels, electronic document flows, and remote access and payment systems.

With the development of digital technology, cyber threats are increasing, requiring rapid and timely detection, development of appropriate countermeasures for prevention and minimization of possible consequences. The role of digitization in the insurance market is certainly increasing. Cyber insurance is currently not well developed, but some insurers are developing software insurance products within their policies, which can reduce the risks associated with cyber threats. Cyber risk insurance includes losses related to computer network security breaches, reimbursement of software costs, and technical examination and restoration of electronic data. Banks, financial institutions and legal entities engaged in IT services act as insurers. To effectively introduce cyber risk insurance into insurance programs, it is important to develop a methodology to assess the value of information resources, considering software and information support costs, and information protection measures.

Digitalization of insurance services, remote settlement of losses, introduction of digital insurance products, honest competition in the insurance market, and expansion of electronic sales channels are all contributing to the development of insurance business in the context of the digital economy. Insurance is meant to minimize information technology risks and enable the protection of policyholders' interests against financial technology risks. On the other hand, with the introduction of digital technology, it is not possible to fully implement the tasks set in the field of financial technology, since insurance risk management mechanisms and loss settlement are not fully electronic. Digital innovation and technology can contribute to changing key processes between participants in the insurance relationship and reduce distrust among market participants, which is primarily *Blockchain* technology aimed at. *Blockchain*, distributed information using information technology, is gaining popularity in the financial services industry because it can capture any action, allowing information transformation for data sharing and security [14].

The adoption of digital technology in the insurance market and the introduction of artificial intelligence depend on effective implementation. Digital insurance technology makes it possible to compete with the world's innovative technologies that ensure information security in the global space. Digital insurance can significantly increase the availability of insurance services and reduce the costs

associated with entering into and maintaining insurance policies and settling claims. The use of digital technologies in insurance contributes to the acceleration of claims payments, improvement of the quality of service to policyholders and effective insurance coverage for consumers of insurance services. Innovative insurance technologies are also one of the key factors in implementing the strategic task of modernizing financial markets.

The role of insurance is growing with the use of IT technologies. Mobile insurance technologies and online services make it possible to provide convenient insurance services. Mobile auto insurance technologies are currently recognized as the most popular insurance products using innovative technologies [15].

It should be noted that financial science and insurance education are critical in the transformation of the native insurance market. The training of highly qualified professionals, taking into account the needs of the modern insurance market, is an important element for the effective functioning of the insurance business. The formation of professional competence of insurance specialists in the field of digital technologies optimizes the results of the activity of insurance companies and guarantees effective protection of policyholders. . In the context of the digitalization of the insurance market, it is important to develop online educational platforms on insurance in order to develop a competent workforce for the insurance market. The transformation of the insurance education system requires a systematic updating of educational technologies preceded by innovation and development of subject matter to adapt to the demands and requirements of a dynamically developing financial market.

In the future, it will be important to develop a national program "Scientific Human Resources in the Insurance Industry", in which it will be important to foresee the problems of training and retraining highly skilled scientific personnel in priority areas of insurance activity, especially in the context of digitalization and transformation of training models in educational institutions. Improving the digital transformation of the educational process involves the need to manage information about insurance risks, their minimization in order to ensure safety in the digital environment in an online educational format. Effective interaction between educational institutions and insurance companies can play a significant role in providing insurance coverage against possible risks and losses.

7. Prospects for further research development

In order to further develop the digitalization of the insurance market, it is worth developing a methodology for estimating the cost of software and information support and means of protecting information. The digitalization of the insurance market is based on the remote settlement of losses, the introduction of new insurance products, fair competition, and the expansion of insurance product sales channels. The further development of the insurance market depends on the effective implementation of digital insurance technologies, which make it possible to compete with the world's innovative technologies that ensure information security at the global level. The digitalization of the insurance market leads to greater access to insurance services and a reduction in the cost of servicing insurance policies through the simultaneous settlement of losses.

8. Conclusions

The transformation of the insurance market in the context of the digital economy has contributed to the expansion of electronic insurance, Internet sales channels and the introduction of digital technologies in the business processes of insurance processes. In addition, digital technologies in insurance are the most important indicator of the efficiency of the financial system, contribute to the development of the insurance market and increase the quality of insurance services, because modern technologies have created a set of advantages for all sides of the digital market. Due to the digital transformation of the insurance market, the quality of insurance services is increasing and new insurance products are emerging that cover new risks associated with technological progress. At the same time, digitalization and the spread of technological innovation create a number of threats, which

include the reduction of the staff of insurance companies and improper state regulation of new relations between the insurer and the insured

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