

THEORETICAL AND PRACTICAL ASPECTS OF DEVELOPING INSURANCE SERVICES BASED ON DIGITAL TECHNOLOGIES

G‘oziyeva Aziza Abdusalomovna

Independent Researcher, Termez State University

Tuxtabayev Jamshid Sharafetdinovich

Professor, Higher School of Business and Entrepreneurship under the Cabinet of Ministers of the Republic of Uzbekistan

Abstract: This article analyzes the theoretical foundations of digitalization in the insurance sector, its economic and institutional significance, as well as the processes of digital transformation being implemented in the insurance market of Uzbekistan. The study examines the economic and legal essence of the concept of insurance based on various scientific sources and provides a comparative analysis of definitions given in national and foreign legislation. In addition, the article highlights the results of the introduction of digital technologies in insurance companies, including the Unified Automated Information System (UAIS), electronic policies, CRM/ERP systems, artificial intelligence, Big Data, and blockchain technologies. The paper also analyzes the main indicators of the insurance market of Uzbekistan for 2022–2024, including the number of insurance organizations, charter capital, the dynamics of brokers and agents, and insurance premiums. The findings show that the digitalization of the insurance sector helps increase the efficiency of insurance companies, reduce fraud, ensure service speed and transparency, and improve customer satisfaction. Furthermore, the article scientifically substantiates the advantages of implementing Big Data, artificial intelligence, and blockchain technologies in the insurance sector, as well as their importance in enhancing the competitiveness of the insurance market. The results of the study serve as a basis for developing practical proposals and recommendations aimed at modernizing the insurance system, improving insurance services in accordance with the requirements of the digital economy, and ensuring the sustainable development of the sector.

Keywords: insurance market, insurance activity, digital transformation, UAIS, electronic policy, CRM/ERP system, Big Data, artificial intelligence, blockchain technology, insurance premiums, insurance companies, financial stability, digital economy.

Introduction. Over the past decades, the insurance sector has not only been increasingly recognized as one of the most important and strategic branches of both the national and global economy, but has also significantly strengthened its role in society as a vital institutional mechanism that ensures financial security, reinforces stability, and mitigates economic problems. During this period, the growing complexity of economic processes, intensified competition in global financial markets, expanded technological integration, and the acceleration of digital transformation have required insurance companies to radically reorganize their internal and external operations, make processes more efficient and transparent, and introduce a high degree of individualization in customer service. The widespread adoption of advanced technological solutions such as digital technologies, artificial intelligence systems, Big Data analytics, blockchain technology, and Internet of Things (IoT) devices enables insurance companies not only to create new services and products, but also to study customer needs in depth, accurately determine their risk profiles, and expand opportunities for providing individualized and optimized insurance services.

The digitalization process offers companies numerous strategic advantages, including the automation of internal operations, cost optimization, improved process efficiency, and the effective allocation of resources. Through this, digital transformation fundamentally improves customer experience, ensures fast, transparent, and high-quality services, and broadens the possibilities for creating personalized insurance products fully tailored to customer needs. Artificial intelligence and Big Data analytics enable companies to deeply study customers’ behavior, financial capacity, needs,

and risk profiles, identify and manage risks, and optimize pricing policies. This, in turn, allows insurance companies to accurately forecast their activities, carry out strategic planning, and manage resources in the most efficient way. At the same time, this process provides companies with significant advantages in responding quickly to market changes and introducing new digital services.

Methodology. The article employs research methods related to the digitalization of the insurance sector. In addition, analysis, synthesis, grouping, comparison, graphical methods, economic-statistical methods, and a comprehensive systematic approach were used.

Literature Review. Sectors that serve a developed market economy—such as commercial banking networks, a modern financial and tax system, auditing, insurance mediation, and stock exchange activity—must be developed; otherwise, it is impossible to speak of taking a clear step toward a civilized market. Naturally, the concept of “insurance” did not emerge yesterday or today. As economists T. Malikov and X. Shennaev emphasize, history shows that relations associated with insurance existed even in the earliest stages of human development. In the primitive communal system, people living in clans and tribes created food reserves in order to protect themselves against various unforeseen events. Some even interpreted floods and droughts as divine punishment. Nevertheless, it is beyond doubt that even in those times reserves were formed to compensate for damage caused by unexpected and accidental events beyond human control [Malikov T., Shennaev X., 2003].

According to the Russian scholar M. Ivanov, during the reign of King Hammurabi, who ruled ancient Babylon in 1792–1750 BCE, members of trade caravans entered into mutual agreements before setting out on their journey [Ivanov M., 2004]. Under this agreement, if any caravan member’s property was lost, stolen, or looted by robbers, the damage was compensated by the other members of the caravan.

Admittedly, several thousand years have passed from the beginning of human civilization to the present day. However, one of the fundamental and scientifically grounded principles of insurance—the formation of reserves to compensate for losses resulting from various events—has remained relevant even today.

According to N. Beknozov and U. Turg’unov, special insurance issues emerged in some countries as early as the Middle Ages. The development of small-scale industry, transport services, and international trade expanded the types and scope of such services in European countries by the eighteenth century. Initially, mainly ships and cargo were insured, but later the compulsory insurance of passengers and ship crew members was introduced. Over time, the sector expanded and services for insuring various economic activities and categories of people began to emerge [Beknozov N., Turg’unov U., 2004]. Some sources note that the first written insurance contract in England was concluded in the fourteenth century, that the first fire insurance society in Russia was established in 1827, that in Italy in 1393 each notary concluded insurance policies with an average of 80 clients per week, and finally that the Marine Insurance Code was adopted in Venice in 1466 [Hamdamova M., 2018]. Some legal literature also indicates that work on the codification of insurance law in Russia began in 1879 [Raylyan A.I., 2007]. The English-derived term “insurance” comes from “in” and “sure,” meaning “in reliable hands.” Thus, an insured object is protected in a reliable way and there is no cause for concern [Qardosh N., 2005].

Today, it is no exaggeration to say that in our country as well, insurance, as one of the necessary elements of production infrastructure, plays a distinctive role in ensuring the continuity of ongoing economic reforms and protecting the population from adverse events in the process of gradually advancing toward an open market economy, a just society, and a strong democratic rule-of-law state. As U. Aitbaev rightly notes, the insurance market provides material assistance in protecting almost all forms of property from natural disasters and in compensating for damage inflicted on people by various calamities [Aitboev U., 2004].

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So, what exactly is “insurance”? How is it defined in academic literature, relevant laws, and especially in the national legislation of foreign countries? To what extent do these definitions cover such relations? This is important because the term is approached differently not only in the works of legal scholars, but also economists, and in the legislation of domestic and foreign states. Proper interpretation of its essence and giving it a unified definition as a “legal category” naturally serves to prevent various ambiguities and problems that may arise.

M. Yusupov considers that “insurance, as an economic category, means a form of creating and distributing a monetary fund managed by a special organization (the insurer), which is formed from contributions of interested organizations and citizens” [Yusupov M., 2008]. E. Hojiev states that “insurance means ensuring compensation for possible losses by paying membership contributions to a special institution.” T. Umarov advances the idea that “insurance is the protection of the interests of legal entities and individuals through the payment of insurance compensation (insurance money) to these persons in accordance with the insurance contract when a certain insured event occurs, from monetary funds formed from insurance premiums paid by them” [Commentary on the Civil Code of the Republic of Uzbekistan, 2013]. M. Yo‘ldoshev and Y. Tursunov define insurance as “an entrepreneurial activity aimed at protecting the interests of the insured by fully or partially compensating material losses arising from the insured event envisaged in the contract concluded between the insurer and the insured, using previously paid insurance premiums” [Yo‘ldoshev M., Tursunov Y.S., 2002]. Russian scholars L.N. Klochenko and K.I. Pilov argue that “insurance is a means of protecting enterprises and the population from losses, a source of investment in the economy, and the basis of social stability and financial protection” [Klochenko L.N., Pilov K.I., 2002]. In the book *Strakhovanie* by I.T. Balabanov and A.I. Balabanov, the following view is presented regarding the essence of insurance: “At the core of insurance lies fear. I am afraid, and therefore I transfer my fear to someone else and protect myself from possible losses through that person” [Balabanov I.T., Balabanov A.I., 2002].

In the explanatory dictionary of economic and legal terms, “insurance” is defined as “an insurance fund formed on the basis of advance contributions by policyholders” [Explanatory Dictionary of Economic and Legal Terms, 1996], while in some legal encyclopedias it is defined as “civil-law relations carried out for the protection of the property interests of legal entities and individuals” [Legal Encyclopedia, 2001]. In the book *Economics for Business*, English scholars John Sloman and Mark Sutcliffe note that “insurance is the opposite of risk; it means preventing danger. For example, you temporarily lose your ability to work due to an injury, and this threatens your income. This risk can be eliminated through insurance” [John Sloman and Mark Sutcliffe, 2001]. According to the Russian scholar I.Y. Sekova, “by its legal nature, insurance represents mutual agreement, that is, a contract” [Sekova I.Y., 2007]. On the Wikipedia legal portal, insurance is described as “a method of risk management in law and economics, serving as a means of protection against unexpected loss. Insurance is a fair transfer of the cost of risk from one party to another in exchange for a certain premium, sometimes preventing large losses through a small guaranteed payment. The insurer is the seller of insurance. The insured is the person or legal entity that purchases insurance. The insurance rate is the standard used to determine the insurance premium paid for coverage” [Google search system, Wikipedia portal].

According to A.P. Sergeev and Y.K. Tolstoy, “in insurance, special organizations—insurers—conclude insurance contracts with citizens and organizations (policyholders) and collect premiums from them. From these premiums (insurance premium), a separate insurance fund is formed, and from this fund the insurer pays the policyholder a specified sum of money when the event provided for in the contract occurs (death, loss of working capacity, damage to property, loss of income, etc.)” [Civil Law, 2003].

As can be seen from the sources, there are diverse approaches to the concept of “insurance.” In some, insurance is understood as a “fund” formed from advance contributions of policyholders; in others, it is viewed as a “means of protection” from losses; in others still, as a “form of creating and distributing a monetary fund” managed by a special organization (the insurer), or as “economic relations” or “civil-law relations” related to compensation for damage. Of course, it should be emphasized that insurance, as both an economic and legal category, is a complex and multifaceted concept. However, it is advisable to clarify its essence as a legal category and, based on both practical need and the study of the experience of developed countries, draw relevant scientific conclusions regarding how correctly the definitions given in our national legislation [Bulletin of the Oliy Majlis of the Republic of Uzbekistan, 2002] reflect this concept.

Before analyzing the opinions of economists and legal scholars, it is also necessary to present definitions given in the national legislation of foreign countries. In particular, Article 1 of the Law of Ukraine “On Insurance” defines insurance as “a type of civil-law relations that protect the property interests of citizens and legal entities in the event of certain events (insured events) established by the insurance contract or current legislation, at the expense of monetary funds formed through the payment of insurance premiums (insurance contributions, insurance payments) by citizens and legal entities and income derived from the placement of these funds” [Law “On Insurance” of Ukraine]. Article 2 of the Law of the Russian Federation “On Insurance” defines insurance as “relations protecting the property interests of individuals and legal entities of the Russian Federation, subjects of the Russian Federation, and municipal entities in the event of certain insured events, at the expense of monetary funds formed from insurance premiums (insurance contributions) paid by policyholders, as well as other funds of policyholders” [Law on the Organization of Insurance Business in the Russian Federation]. Article 2 of the Insurance Law of the People’s Republic of China states that insurance includes documents related to the insurer’s liability to pay compensation to the insured in accordance with the contract when the insured suffers property loss due to an insured event, or when the insured reaches a certain age, dies, becomes ill, or becomes disabled [Insurance Law of the People’s Republic of China].

As can be seen from the above academic and legal definitions of “insurance,” there are various approaches to defining this concept. In our view, as an economic category, “insurance” may carry different meanings, but as a legal category it is advisable to establish a unified concept and formulate it in the Law “On Insurance Activity.”

Taking into account the positive achievements of foreign experience and the provisions of Chapter 52 of the Civil Code (“Insurance”), insurance can be defined as follows: “Insurance means civil-law relations aimed at protecting the property interests of legal entities or individuals (policyholders) by paying insurance compensation (insurance money) to them by insurers, in accordance with the insurance contract, when a certain event (insured event) occurs, at the expense of monetary funds formed from insurance premiums (insurance contributions) paid by such persons and from other sources not prohibited by law.” This definition can be substantiated as follows:

First, insurance, as a legal category, is a type of civil-law relation. It is no coincidence that a separate chapter of the Civil Code is devoted to “Insurance.” In addition, any subject of civil law must conclude contracts regulated by the Civil Code in order to participate in insurance relations. It can also be observed in the experience of Ukraine and Russia that insurance is regarded as a type of civil-law relation. Therefore, expressing insurance as a type of civil-law relation helps prevent divergent interpretations.

Second, legal entities and individuals who pay insurance premiums by concluding an insurance contract participate in insurance relations as “policyholders.” Therefore, clearly identifying their status in the definition ensures consistency with the relevant provisions of the Civil Code. In the definition, it is also necessary to specify who assumes the obligation to pay insurance compensation

(insurance money) to policyholders when an insured event occurs; hence the inclusion of the phrase “by the insurer.”

Third, the monetary fund from which the insurer pays insurance compensation in accordance with the contract when an insured event occurs is formed not only from insurance premiums paid by legal entities or individuals (policyholders), but may also be formed from other sources not prohibited by applicable legislation. For example, the Resolution of the President of the Republic of Uzbekistan dated May 21, 2008 “On Additional Measures for Further Reforming and Developing the Insurance Services Market” [Collection of Legislative Acts of the Republic of Uzbekistan, 2008] granted insurers the right to carry out professional activities as investment intermediaries in the securities market in order to further improve insurance activities in the country, increase the capitalization and financial stability of insurers, expand their territorial networks, encourage the participation of insurance companies in investment processes, and ensure effective protection of the rights of consumers of insurance services. This is a clear example that their monetary funds may also be replenished from such activities. Therefore, considering foreign experience, it would be more perfect to stipulate in the definition that the insurers’ monetary funds may also be formed from other sources not prohibited by law.

Fourth, any subject entering into insurance relations does so primarily taking into account the satisfaction of property interests. One may naturally ask whether a property interest is also implied when insuring a person’s life or health. In our view, even in such cases, property interest is manifested first and foremost; secondly, it is no secret that any damage to a person’s life or health caused by an accident may also be compensated through a civil-law method, namely compensation for damage, which ultimately satisfies an interest—more precisely, a property interest. Therefore, it would be more appropriate to use the phrase “property interest” in the legal definition of “insurance.”

In our national legislation, insurance activity is understood as the activity of professional participants in the insurance market related to the implementation of insurance. While the concept of “insurance service” covers the set of services provided by professional participants in the insurance market, “insurance activity” also includes the process of organizing insurance and the порядок of carrying out the activities of these professional participants.

Analysis and Discussion

Full integration with the Unified Automated Information System (UAIS) acts as a key component that forms a centralized model of data management in the insurance market. API integration through the UAIS enables the automatic registration of insurance policies, as well as the management of their verification and monitoring processes in real time. This system is a fundamental infrastructure that ensures data consistency, reliability, and audit readiness, and significantly expands the ability to detect and prevent fraudulent practices in the insurance market. The introduction of the UAIS improves the efficiency of information exchange between the regulator and insurance entities, enhances market oversight instruments, and creates a strategic information base ensuring sectoral stability.

The emergence of the electronic policy institution radically changes the paradigm of document circulation in the insurance market. QR-code-based policies and contracts in PDF format confirmed by electronic digital signatures guarantee the authentication, integrity, and protection of documents, ensuring that insurance services are legally reliable, technologically secure, and operationally economical. Electronic policies minimize the risks associated with paper documents and improve continuity of information and ease of access. At the same time, identification mechanisms carried out through electronic policies strengthen compliance of insurance operations with cybersecurity requirements.

The introduction of CRM/ERP systems for insurance companies is considered the central link in the digitalization of business processes. Through these systems, customer segmentation, contract

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management, risk modeling, damage assessment, payment automation, and analytical reporting are carried out within an integrated ecosystem. CRM/ERP systems enhance the operational efficiency of company activities and enable management decisions to be made on the basis of evidence-based approaches. This reduces the complexity of corporate governance, strengthens the competitiveness of insurance organizations, and develops their ability to respond flexibly to market demand.

The introduction of online insurance platforms expands public access to insurance services and accelerates the digital distribution of insurance products. Digital interfaces formed on the basis of web portals and mobile applications allow customers to make independent choices based on their needs, formalize policies in real time, and make payments through electronic systems. This process optimizes customer experience, contributes to the popularization of services, and has a significant impact on the development of insurance culture. Digital platforms also create new business models for insurance companies, such as remote sales, rapid consultation, and automated pricing.

A cloud-based electronic archive system modernizes the processes of storing, processing, and archiving information in the insurance market. This system ensures continuity, security, and efficient management of large volumes of information. With the help of electronic archives, insurance companies reduce the costs of storing paper documents, ensure quick access to information, and align archival processes with international information management standards. As a result, this process increases the functional stability of the entire system.

The automation of insurance events requires advanced technological approaches using artificial intelligence, machine learning, and digital expertise algorithms. Automatic analysis of photo and video evidence submitted by customers makes it possible to quickly and objectively calculate the amount of damage. This reduces subjective errors and increases the transparency, fairness, and predictability of the compensation process. Automated expertise opens new analytical opportunities for the insurance market: early risk detection, prediction of event probability, and optimization of tariff policy.

The introduction of fraud-control systems is a fundamental mechanism aimed at preventing corruption risks, fake policies, and illegal claims in the insurance sector. Digital fraud-control algorithms detect inconsistencies by analyzing databases, flag risky operations, and automatically block suspicious transactions. This ensures the institutional security of the insurance system, strengthens market stability, and increases customer trust.

The successful implementation of digitalization processes depends directly on employees' digital competencies; therefore, investment in human capital is of strategic importance. Training employees in new technologies, increasing their digital literacy, and helping them master modern management tools ensure the innovative development of the sector. When qualified personnel are available, digital transformation processes proceed effectively not only at the technical but also at the institutional level.

Ultimately, the formation of a customer-oriented digital service ecosystem creates a new stage of quality principles, innovative approaches, and operational efficiency in the insurance market. Online sales, electronic payments, digital verification of policies, and customers' ability to independently manage their information increase the accessibility of insurance services and create a sustainable insurance environment that meets the demands of the digital economy. Resolution PQ-108 strengthens the regulatory and legal basis of these processes and serves to accelerate the digital transformation of the insurance system.

The systematic introduction of digitalization measures in the insurance sector, especially within the framework of Resolution PQ-108, significantly improves the technological and operational efficiency of companies. For this purpose, when integration with the UAIS is implemented, the possibility of automatic policy registration is created, which ensures continuous and efficient data exchange with state information databases in real time. As a result, insurance companies' verification

processes become 92% faster, while fraud cases decrease by 40%, significantly increasing transparency and strengthening customer trust. At the same time, the introduction of electronic policies (QR-code and PDF format) and e-signature completely eliminates the need for paper documents, reducing paper-related costs by 65% and increasing customer satisfaction from 78% to 91%, which clearly demonstrates the effectiveness and practical benefits of digital transformation. This process plays an important role in improving service quality, ensuring document security, and creating convenience for customers through modern digital services.

Table 1

Systematic measures for digitalization in the insurance sector

Stage	Activities to be implemented	Result
1. Integration into the UAIS	Introduction of an automatic policy registration system	Verification process speeds up by 92%, fraud cases decrease by 40%
2. Electronic policies (QR/PDF + E-signature)	Paper policies are abolished, all policies are in digital format	Paper costs decrease by 65%, customer satisfaction rises from 78% to 91%
3. CRM/ERP system	Customers, policies, payments, and reports are managed in a single system	Employee productivity increases by 47%, manual requests decrease by 30%
4. Automation of insurance events (AI)	Photo and video evidence is analyzed by AI	Process time decreases from 2–3 days to 18 seconds, human error decreases significantly
5. Fraud-control system	Detection of fake policies and suspicious claims is automated	Detected fraud increases threefold, annual financial losses of 1.2 billion soums are prevented
6. Digital services (web and mobile platform)	Online sales and services are launched	Online sales increase by 46%, company market share rises by 12%, customer convenience improves significantly

Source: Author’s calculations based on bulletin data of the National Agency for Prospective Projects of the Republic of Uzbekistan.

From the perspective of optimizing internal management processes, the CRM and ERP systems being introduced make it possible to manage all company data on a single platform. In particular, customer data, policies, payments, and reports are tracked and managed operationally in one integrated system. This approach increases employee efficiency by 47% and reduces manually processed requests by 30%, thereby significantly improving the accuracy of processes and the quality of monitoring. In addition, the automation of insurance events allows photo and video evidence to be analyzed through AI tools. Process speed is reduced from 2–3 days to 18 seconds, while the human factor and errors are minimized. This is an important factor in improving service quality, ensuring speed, and strengthening the convenience and reliability of digital services for customers.

The benefits of digitalization are also broad and highly visible from the standpoint of security and market competitiveness. Through the fraud-control system, the company automates the detection of fake policies and suspicious claims; the number of detected fraud cases increases threefold, and annual financial losses of 1.2 billion soums are prevented, significantly reducing the company’s financial risk. At the same time, digital services are launched on web and mobile platforms, online sales increase by 46%, and the company’s market share rises by 12%, while customers’ access to modern digital services improves considerably. As a result, the comprehensive and systematic implementation of digitalization measures ensures the stable development of insurance companies in

financial, technological, and service spheres, while digital transformation gains strategic importance in adapting companies to global and local competitive conditions.

The prospects for digitalizing the insurance sector serve to optimize all operational, technological, and financial processes of the company. Through integration with UAIS, electronic policies, CRM/ERP platforms, and AI-based automation of insurance events, verification processes accelerate, fraud and errors decrease, employee efficiency improves, and customers are offered convenient, secure, and rapid services. At the same time, the introduction of digital sales and mobile platforms expands the company’s market share, increases customer satisfaction, and ensures its adaptation to modern competitive conditions. In general, the digitalization of the insurance sector emerges as a key factor in strategically strengthening a company’s sustainable development, transparency, and competitiveness.

The development trends of the insurance market of the Republic of Uzbekistan over the last three years indicate important changes and the need for strategic transformation in several areas. During 2022–2024, a noticeable decrease was observed in the number of insurance organizations. In particular, while 41 insurance companies operated in the market in 2022, this number fell to 38 in 2023 and to 33 in 2024. At the same time, the number of companies operating in life insurance also declined from 8 in 2022 to 5 in 2024. This indicates an intensification of market consolidation processes; in other words, only companies with strong financial stability and a high capacity to provide competitive services are continuing their activities. This trend also reflects the effectiveness of measures aimed at encouraging quality competition and regulating the market. The decrease in the number of companies signifies the market’s natural selection and shows that entities that failed to implement digital technologies or lacked a sufficient capital base were forced to leave the market.

On the other hand, if we look at the table below, we can see that the total charter capital of insurance organizations has grown significantly. The charter capital, which amounted to 1.884 trillion soums in 2022, increased to 2.298 trillion soums in 2023 and reached 2.964 trillion soums in 2024, clearly demonstrating the rise in financial stability and capitalization. This growth can be explained in several ways.

First, by increasing capital, companies expand their financial capacities, become capable of introducing high-value insurance policies, managing risks effectively, and covering complex financial risks. Second, the growth of capital strengthens the investment potential of market participants and serves as an additional guarantee for regulators in stabilizing and regulating the insurance market. In this context, growing charter capital enables companies to introduce new digital technologies, such as artificial intelligence, Big Data analytics, and blockchain integration, thereby improving service quality and allowing greater individualization in meeting customer needs.

Table 2

Analysis of the number of insurance organizations and charter capital in the Republic of Uzbekistan

Indicators	2022	2023	2024
Number of insurance organizations	41	38	33
including life insurance companies	8	7	5
Total charter capital of insurance organizations (million soums)	1,884,111	2,298,572	2,963,695
Number of insurance brokers	7	8	11
Number of actuaries	5	5	5
Number of insurance agents	9,155	4,736	4,804
including legal entities	2,625	1,711	1,704

Number of insurance organizations that are members of the Payment Guarantee Fund	25	26	25
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Source: Author’s calculations based on bulletin data of the National Agency for Prospective Projects of the Republic of Uzbekistan.

Changes in the number of insurance brokers and actuaries also reflect important market trends. While 7 insurance brokers operated in 2022, their number reached 11 in 2024. This indicates growing market demand for brokerage services and the expansion of insurance services through intermediaries. Brokers interact directly with customers and play an important role in selecting complex insurance products, assessing risks, and building a reliable mechanism of trust between the company and the client. At the same time, the number of actuaries remained stable at 5. This indicator reflects the professional capacity for scientifically grounded risk assessment and pricing optimization in the market. The presence of actuaries enables companies to accurately forecast insurance risks, shape investment portfolios, and ensure financial stability.

The number of insurance agents, however, has declined significantly in recent years. In 2022, 9,155 agents were operating; in 2023, this number dropped to 4,736 and in 2024 slightly increased to 4,804. The number of agents operating through legal entities also decreased, from 2,625 to 1,704. This trend can be explained by the expansion of digital technologies, remote service delivery, and the growing opportunities for service provision through online policies. The decline in the number of agents is related to strategic changes aimed at optimizing costs, automating service processes, and improving customer experience. At the same time, this process contributes to improving the quality of the agency network, attracting professionally qualified personnel, and strengthening an individualized approach to customers.

The number of insurance organizations that are members of the Payment Guarantee Fund remained stable during 2022–2024 at around 25–26 organizations. This indicator reflects the mechanism ensuring financial security and the reliability of insurance services in the market. The Guarantee Fund supports the stable functioning of the market and helps insurance companies fulfill their obligations on time, thereby serving as an additional source of trust for customers and investors.

Over the past three years, the insurance market of Uzbekistan has been developing steadily in the direction of increasing competitiveness, strengthening financial stability, and optimizing service quality through digital technologies. The reduction in the number of companies, the increase in charter capital, the optimization of the agency network, and the expansion of brokerage activities serve strategic goals such as providing high-quality services, ensuring financial security, and individualizing customer needs. Thus, the insurance market is moving steadily not only toward greater financial stability, but also toward improving customer experience through modern technologies and innovative services.

Recent trends in the insurance market of Uzbekistan—including the reduction in the number of companies, the increase in charter capital, and the optimization of the agency system—further intensify the need for digital transformation. The digitalization process enables insurance companies to automate internal operations, optimize costs, and introduce an individualized approach to customers. Artificial intelligence and Big Data analytics serve to identify customer risk profiles, tailor insurance policies, and improve service quality, while blockchain technology reduces the risk of fraud by making contracts transparent and reliable. In this way, digital transformation creates opportunities to strengthen the stability of Uzbekistan’s insurance market, increase global competitiveness, and develop effective, transparent, and individualized relations with customers.

In the context of the prospects for digitalizing the insurance market of Uzbekistan, Big Data technology gives companies the opportunity to systematically collect and deeply analyze large volumes of customer, risk, and market data. With this technology, insurance companies identify customer behavior and needs, form individual risk profiles, optimize pricing policy, and create new

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insurance products. For example, in motor insurance, the level of risk can be determined by monitoring a driver’s movements in real time; in health insurance, individual policies can be developed by analyzing a patient’s medical history. At the same time, artificial intelligence technology allows insurance processes to be automated and decisions to be made quickly: algorithms assess claims, predict risks, and tailor policies to customer needs.

Table 3

Advantages of implementing Big Data, Artificial Intelligence, and Blockchain technologies in insurance companies

Technology	Method of implementation	Objectives and advantages	Practical examples
Big Data	Collecting and analyzing large-scale customer, risk, and market data; real-time data processing	Identifying customer needs and behavior; in-depth analysis of risk profiles; optimizing pricing policy	Tracking driver behavior for motor insurance; analyzing patient history in health insurance
Artificial Intelligence (AI)	Analyzing data through algorithms, making decisions automatically, assessing claims, and forecasting risk levels	Individual customization of insurance policies; rapid and accurate claim review; early prediction of risks	Customer service through chatbots; automatic claim review and approval
Blockchain	Storing insurance contracts and transactions in an immutable, transparent, and secure manner; automation through smart contracts	Reducing fraud and incorrect claims; fast and reliable execution of contracts; process automation	Automatic execution of motor insurance payments through smart contracts; real-time monitoring of health insurance claims

Source: Author’s calculations based on bulletin data of the National Agency for Prospective Projects of the Republic of Uzbekistan.

Through chatbots, customer service is simplified, while automatic claim verification systems accelerate processes and reduce employee workload. Thus, Big Data and artificial intelligence together enable companies to improve service quality, manage resources effectively, and enhance strategic planning. Blockchain technology, in turn, makes it possible to store insurance contracts and transactions in an immutable, transparent, and secure form. Through smart contracts, payments are automated, the risk of fraud and incorrect claims is reduced, and processes are significantly simplified.

In practical terms, for example, motor insurance payments or health insurance claims can be executed in real time. In this way, blockchain enables companies to perform contracts quickly and reliably, automate internal processes, and develop stable and individualized relations with customers. As a result, the joint implementation of Big Data, artificial intelligence, and blockchain technologies opens a new stage in the digitalization of Uzbekistan’s insurance market, significantly strengthening the market competitiveness of companies through process optimization, accurate risk management, and improved service quality.

Table 4

Analysis of total and life insurance premiums in the insurance market of the Republic of Uzbekistan (for 2022–2024, in million soums)

Indicators	2022	2023	2024
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Total insurance premiums	6,231,726	8,059,726	9,770,107
Insurance organizations in the general insurance sector, including:	4,707,047	7,737,236	9,483,746
compulsory insurance	491,276	632,427	664,719
voluntary insurance	4,215,771	7,104,809	8,819,027
Insurance organizations in the life insurance sector, including:	1,524,679	322,491	286,362
compulsory insurance	26,766	35,645	48,162
voluntary insurance	1,497,912	286,846	238,199

Source: Author's calculations based on bulletin data of the National Agency for Prospective Projects of the Republic of Uzbekistan.

During 2022–2024, a significant and consistent growth process has been observed in the insurance market of the Republic of Uzbekistan. Total insurance premiums amounted to 6,231,726 million soums in 2022, increased to 8,059,726 million soums in 2023, and reached 9,770,107 million soums in 2024. The steady increase in these indicators clearly demonstrates the financial stability of insurance companies, the expansion of their market activities, and their strategic development opportunities.

The volume of premiums collected by organizations in the general insurance segment also increased significantly: from 4,707,047 million soums in 2022 to 7,737,236 million soums in 2023 and 9,483,746 million soums in 2024. The main driver of this growth was the sharp development of the voluntary insurance segment, since the indicator, which amounted to 4,215,771 million soums in 2022, rose to 8,819,027 million soums in 2024, nearly doubling. At the same time, the compulsory insurance segment grew more slowly but steadily, increasing from 491,276 million soums to 664,719 million soums. These trends compel insurance companies to introduce new products, allocate financial and operational resources more effectively, and study customer needs more deeply in order to offer services suited to them. In this way, growth in the insurance market not only strengthens financial stability, but also expands opportunities for companies to engage in strategic planning and introduce digital technologies.

In the life insurance segment, however, a complex and contradictory trend was observed. Total premiums amounted to 1,524,679 million soums in 2022, but sharply declined to 322,491 million soums in 2023 and further to 286,362 million soums in 2024. The most significant reduction occurred in the voluntary life insurance segment: the indicator fell from 1,497,912 million soums in 2022 to 238,199 million soums in 2024. At the same time, a small but stable and consistent increase was observed in the compulsory life insurance segment, from 26,766 million soums to 48,162 million soums. These trends clearly indicate that the attractiveness of voluntary life insurance products has declined, while compulsory insurance mechanisms continue to function steadily and actively.

Under such conditions, insurance companies can revive the life insurance segment through digital transformation, process automation, and the introduction of individualized, customized customer services. This not only increases competitiveness, but also helps strengthen long-term and reliable cooperation with customers and create new products adapted to market demand.

Conclusion and Recommendations

The conducted research shows that the digitalization of the insurance sector is one of the most important factors for the effective organization of insurance services and the sustainable development of the insurance market in the modern economy. The introduction of digital technologies enables insurance companies to automate their activities, process information rapidly, establish effective interaction with customers, and improve service quality. At the same time, the use of electronic

policies, the Unified Automated Information System, and CRM and ERP systems contributes to ensuring the transparency of insurance operations and reducing fraud.

The analysis shows that digital transformation processes in the insurance market of Uzbekistan are being implemented step by step, and this process is positively affecting the number of insurance companies, the growth of insurance premiums, and the expansion of market infrastructure. In addition, the introduction of Big Data, artificial intelligence, and blockchain technologies creates opportunities to improve the accuracy of insurance risk assessment, individualize insurance products, and further improve service provision processes.

From this point of view, it is advisable to further deepen the digitalization of the insurance sector in our country, integrate information systems, develop digital infrastructure, and expand the possibilities for providing insurance services in online formats. This, in turn, will serve to increase the competitiveness of the insurance market, raise the level of use of insurance services by the population and business entities, and strengthen the stability of the country's financial system.

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