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MODERN DIGITAL TECHNOLOGY IN CHINA'S INSURANCE INDUSTRY

The relevance of the study is due to the fact that the digital economy has become an important strategic development direction of the People's Republic of China, and it is also a new engine of economic growth. This article uses case analysis and comparative analysis to prove the positive impact of digital technology on China's insurance industry and promote the rapid development of China's insurance industry. The article also proves that the development level of the insurance industry is regional, and there are regional differences in the development of the modern insurance industry, which is consistent with regional economic development. The article aims to identify the impact of digital technologies on the development of the insurance industry in China at the present stage. The research objectives are to analyze the following aspects of the topic under study: the general trend in China's modern digital technology in the 21st century; the digital technology influence on the rapid development of China's insurance industry; the cloud computing technology development in the insurance industry; the role of artificial intelligence technology in the rapid development of China's insurance industry. The research result of this article is that digital technology has promoted and accelerated the rapid development of China's insurance industry. Digitization has brought China's insurance industry into a digital phase of comprehensive development. In this phase, China's insurance industry is facing major opportunities and challenges.

Keywords: digital technology, China's insurance industry, big data technology, cloud computing technology, artificial intelligence technology

Introduction

Modern digital technology has triggered the reform of the insurance industry in the financial era. At this stage, the insurance industry is facing huge challenges. Therefore, major state-owned insurance companies make full use of modern big data, cloud computing, artificial intelligence, and blockchain technologies to improve. The company's service level has improved the intelligent service level of insurance companies and has greatly increased the insurance income of major state-owned insurance companies. At this stage, China's opening to the outside world is getting greater and greater, China's insurance market has broad development prospects, and the auxiliary policies of the Chinese government have caused more and more insurance companies from developed countries to invest in China. Chinese insurance companies work closely with foreign companies. China's companies have learned advanced experience and technology to enable them to operate. The operation is getting better and better, and the premium income is getting higher and higher.

Since the founding of the People's Republic of China on October 1, 1949, the living standards of the people of all ethnic groups in the People's Republic of China have significantly improved. In 1978, the new China implemented the economic policy of reform and opening up. China's cheap labor, abundant mineral resources, developed transportation, and superior geographical location have caused most large companies from developed countries to invest in China one after another. Large state-owned companies in China have strengthened close cooperation with foreign companies, and Chinese companies have learned advanced technology and successful management experience. The level of science and technology of the People's Republic of China has improved. In 2001, the People's Republic of China formally joined the World Trade Organization and became the 143rd member country. China's trade with other countries in the world has become increasingly close. Since the beginning of the 21st century, the People's Republic of China's digital technology has developed rapidly and promoted the development of China's digital technology; at the same time, the digital economy has become a new development strategy.

With the advancement of the national China Digital Economy strategy, the in-depth integration of Internet of Things, Big Data, Artificial Intelligence, Cloud Computing, Blockchain, and the Real Economy has been promoted to gradually subvert the ideology of Chinese business, economic globalization and information. In the face of the historical opportunity of the technological revolution, enterprises have ushered in the opportunity of digitalization.

The spread and improvement of digital technologies affect the development of industrial relations, the structure of the economy and education, and defines new requirements for communications, computing power, information systems and services. In modern conditions, the dynamic development of markets and spheres of activity is hardly possible without developed platforms, technologies, institutional and infrastructural environments [1].

Digitalization determines the interest of insurers in basic innovations. To simplify insurance processes and mechanisms, they are increasingly using digital technologies. Such technologies include, in particular, automation, chatbots, cloud computing, technologies with elements of artificial intelligence [2].

In my opinion, the rapid development of digital technology has played a key role in driving the insurance industry. Digital technology innovation represented by big data, artificial intelligence, cloud computing, and blockchain will bring disruptive changes and innovations to the insurance industry, and drive further growth of the insurance economy. Driven by digital technology and changes in demand, digitalization will become a new driving force for China's insurance industry to transform, upgrade, improve quality and efficiency, and lay a foundation for the development of the Chinese insurance economy, the transformation, upgrading, and the integrated development of the insurance industry. Modern digital technology has produced positive effects on the development of the Chinese insurance industry's influence in the 21st century.

The research hypothesis is: the insurance industry in China is currently experiencing a strong boom due to digital technologies, but there is a risk of weak

government regulation in the use of such technologies. Therefore, the Chinese government is committed to transferring the country's economy to the digital yuan as a controlled digital analogue of the fiat national currency. Such control, in turn, affects the risk of developing an uncontrolled shadow sector of the economy, in which the insurance industry becomes a field for speculation.

The research aims to identify the impact of digital technologies on the development of the insurance industry in China at the present stage on the example of the five largest Chinese insurance companies.

The research objectives are to analyze the following aspects of the topic under study: the general trend in China's modern digital technology in the 21st century, the digital technology influence on the rapid development of China's insurance industry, the cloud computing technology development in the insurance industry, and the role of artificial intelligence technology in the rapid development of China's insurance industry.

Methods and materials

The research methodology is based on a systematic approach and includes the methods of the general scientific group (analysis, synthesis, deduction, induction), as well as special methods: content analysis of scientific literature on the research topic, statistical quantitative analysis, and trend detection method (industry analysis).

The research materials were reports on digitalization of the five leading Chinese insurance companies:

1. China Life Insurance Co., Ltd.

With a market capitalization of approximately \$ 107 billion, China Life Insurance Co., Ltd. (NYSE: LFC) is the largest insurance company in China and one of the leading insurance companies in the world. It was founded in 1949. The company manages life and property insurance, and provides asset management and other financial services. China Life maintains a significant nationwide service network with nearly 750,000 specialized agents and over 60,000 offices. The company's client base is approaching 200 million in individual and group life insurance, long-term health insurance policies and annuities. China Life is listed on the Shanghai Stock Exchange, Hong Kong Stock Exchange and New York Stock Exchange.

2. Ping An of China

Ping An of China was founded in 1988 and held an initial public offering (IPO) in 2004. While the company started out as a property and casualty insurance company, it has since expanded into life insurance, banking, online financial services, and asset management with the stated goal of becoming a comprehensive financial services provider. It has a market capitalization of around \$ 90 billion. Ping An has over 225,000 full-time employees and partners with over 625,000 sales agents in China. The company has over 89 million customers in its divisions. Ping An is listed on the Shanghai Stock Exchange and the Hong Kong Stock Exchange.

3. China Pacific Insurance

China Pacific Insurance Group is an integrated insurance provider offering property and casualty insurance, life insurance and reinsurance, asset management, and investment services. The company employs over 300,000 agents and serves about 80 million customers nationwide. China Pacific Insurance traces its roots back to 1991. It was listed on the Shanghai Stock Exchange in 2007 and the Hong Kong Stock Exchange in 2009. It has a market capitalization of over \$ 33 billion. China Pacific is one of the leading cargo insurance companies, although all of the companies on this list are active in the field.

4. People's Insurance Company of China Group

People's Insurance Company of China Group was founded in 1949. Today its subsidiaries have over 300 million clients in the fields of property and accident insurance, life insurance, health and real estate insurance. Its most significant subsidiary is PICC Property and Casualty Company, which sells a wide range of life insurance products including auto, homeowners, commercial real estate and agricultural ones. People's Insurance Company China Group owns approximately 69% of PICC Property and Casualty. The company is listed on the Hong Kong Stock Exchange and has a market capitalization of approximately \$ 21 billion.

5. New China Life Insurance

New China Life Insurance Company was founded in 1996 and quickly became one of the top five companies in the industry. While the company's core business remains life insurance, it also has growing business interests in the investment and healthcare industries. New China Life Insurance has over 26 million customers, 175,000 agents, and 1,600 businesses nationwide. The company was listed on both the Hong Kong Stock Exchange and the Shanghai Stock Exchange in 2011. It has a market capitalization of over \$ 17 billion.

The data of these companies are indicative for the industry, as they are the companies with the highest capitalization and widely use digital technologies in cargo insurance.

Results

I have identified the following trends for the five largest insurance companies in China in the use of digital technologies:

1. The companies' promotion of the big data technology in the insurance field

Big data technology in two companies refers to the application of big data technology covering various big data platforms, big data index systems, and other big data application technologies. In today's society, the application of big data has increasingly demonstrated its advantages, and it occupies more and more areas. E-commerce, O2O, logistics, distribution, and other various fields that use big data for development are helping companies continue to develop new businesses and innovate operating models. With the concept of big data, the judgment of consumer behavior, product sales forecast, precise marketing scope,

and inventory replenishment in the companies have been comprehensively improved and optimized in recent three years [3] (Figure 1).

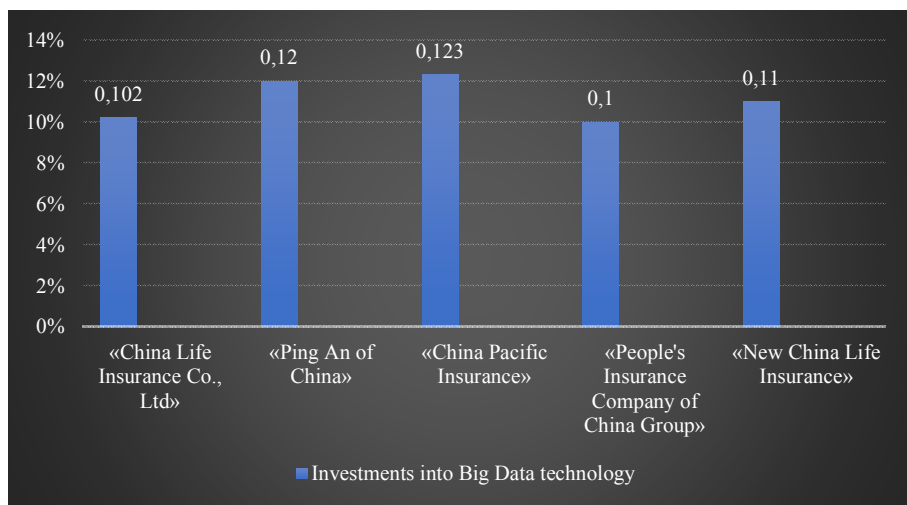


Figure 1. Dynamics of investments in big data for the five leading companies over the past three years (% , in the total investment; compiled by the author based on the companies' reports)

These data will require too much time and money when downloaded to a relational database for analysis. The use of big data analysis in the development of Internet insurance products can more accurately and effectively meet the needs of insured persons. Combined with Alibaba's deep accumulation in the field of Internet e-commerce, it will have the opportunity to form a PMB model with "Chinese characteristics" and promote medical and pharmaceutical products [4].

Big data technology plays a key role in the development of the insurance industry, which is mainly reflected in the following aspects:

(1) Big data can realize insurance product innovation. Big data technology, on the one hand, can optimize traditional products; on the other hand, it can promote insurance product innovation [5].

(2) Big data can improve the quality of actuarial calculations. The era of big data, especially the development of the Internet of Things, has given insurance companies more powerful data collection, analysis, and processing capabilities. By analyzing more sample data, even full sample data, it can refine, summarize, and judge massive amounts of data so as to achieve accurate forecasting and precise pricing.

(3) The big data technology can broaden the development space of the industry. It can tap the potential customer needs, make precise marketing, and, accordingly, to expand the user base. The big data technology promotes changes in the design and marketing of insurance products.

(4) The big data technology improves industry risk management capabilities. The technology can collect multi-dimensional comprehensive data and expand

the data sample used for risk estimation. In the field of risk management, insurance companies can enhance their underwriting risk identification capabilities, claim anti-fraud capabilities, and effectively improve the insurance industry's anti-fraud and risk management capabilities.

With the rapid development of the information age, people are more and more aware of the important value of big data, and gradually use the big data technology to change social production activities and human daily life. The big data technology has been widely used in the insurance industry and commerce [6].

2. The companies' promotion of the cloud computing technology in the insurance industry

The cloud computing technology is a concentrated manifestation of information technology development and service model innovation, a major change and an inevitable trend of information development, a commanding height of international competition in the information age, and a fuel-supporting agent for the new kinetic energy of economic development. Cloud computing has triggered innovations in software development and deployment models, has become a key infrastructure for carrying various applications, and has provided important basic support for the development of emerging fields such as big data, the Internet of Things, and artificial intelligence.

The cloud computing technology has been vigorously promoted in the five top companies of China's insurance industry, which has advanced the development of China's digital insurance in the modernization stage. Specifically, it is presented in the following aspects:

(1) The insurance industry is expanding rapidly. From the end of the 20th century to the beginning of the 21st century, the cloud computing technology promoted a shift of China's insurance industry to the digital trend, the continuous optimization of the insurance industry structure; the industrial chain tended to be complete.

(2) There are breakthroughs in key technologies. China has continuously made new breakthroughs in the key technologies of cloud computing in large-scale concurrent processing data centers; some indicators have reached the international advanced level, which strongly supports the needs of the Chinese insurance market in the digital phase.

(3) The application scope of the cloud computing technology continues to expand. A large number of small, medium and micro insurance companies have applied cloud services, and cloud computing technology is gradually expanding in the insurance field and exerting its due functions [3] (Figure 2).

After the development of the past 10 years, the cloud computing technology has completely changed the traditional business model of the five top companies in the insurance industry and the operation mode of the entire insurance market. With the increase in market acceptance, the cloud computing technology has entered the stage of market harvest and has become the engine of technological growth [7]. The cloud computing technology is becoming an important driving force for the development of the digital economy. At this stage, it provides a wealth of cloud tools and cloud services for all walks of life, which greatly re-

duces the cost of innovation and the digital transformation and upgrading of enterprises.

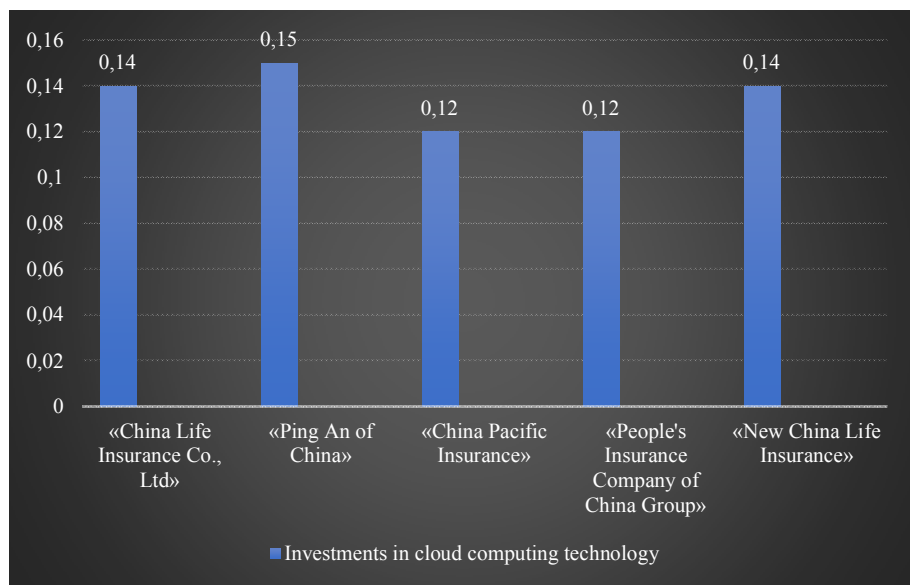


Figure 2. Dynamics of investments in the cloud computing technology for the five leading companies over the past three years (% in the total investment; compiled by the author based on the companies' reports)

3. The companies' promotion of the artificial intelligence technology for the insurance industry

At present, the five major insurance companies in China have begun to actively deploy artificial intelligence, actively promote the research of artificial intelligence and related cutting-edge technologies, deeply explore the application scenarios of artificial intelligence, and guide artificial intelligence technology to play an active role in economic and social development [3]. The use of digital technology in the insurance industry can be considered as a factor in achieving breakthroughs in improving the quality of insurance services [8].

Through these companies' participation, China has officially entered the stage of economic digital transformation driven by artificial intelligence in the past three years (Figure 3).

The Government of China actively supports efforts to promote artificial intelligence technologies in insurance companies.

In July 2017, the State Council of China issued the New Generation Artificial Intelligence Development Technology Plan, marking the official rise of the artificial intelligence technology as China's national development strategy. At present, the social cognition of artificial intelligence in China's first-tier cities has moved from basic cognition to deeper professional and technical cognition.

How to improve the social cognition level of more regions and cities is the direction on which local governments need to work hard.

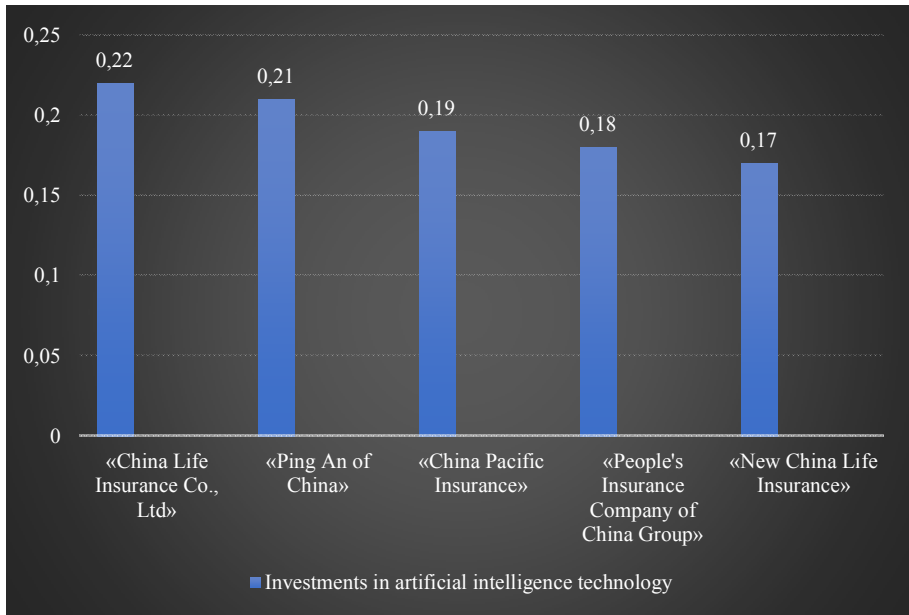


Figure 3. Dynamics of investments in the artificial intelligence technology for the five leading companies over the past 3 years (% in the total investment; compiled by the author based on the companies' reports)

A healthy development of artificial intelligence requires joint efforts of the whole society. It is very important to mobilize the enthusiasm of social participation. A full understanding of the current social cognition and future development trends of artificial intelligence will help my country better grasp the new opportunities for artificial intelligence development. China's digital industrialization is developing steadily.

Table 1. 2014–2019 China's digital industrialization added value scale (unit: 100 million yuan, %)

Year	Digital industrialization scale (100 million yuan)	Growth rate, %
2014	42115	
2015	47780	13.34
2016	51995	8.74
2017	61517	18.40
2018	64119	4.23
2019	70878	10.54

Source: China Academy of Information and Communications Technology, duozhishidai.com (2021).

Table 1 shows that China's digital industrialization is developing steadily, and the market size is increasing year by year, with a compound growth rate of 11% from 2014 till 2019. In 2019, the added value of China's digital industry reached 7,077.8 billion yuan, a year-on-year increase of 10.54%, accounting for 7.2% of GDP.

Table 2. 2014–2019 China's industrial digital added value scale (unit: 100 million yuan, %)

Year	Digital industrialization scale (100 million yuan)	Growth rate, %
2014	119525	
2015	138521	15.89
2016	173826	25.52
2017	210220	20.91
2018	248815	18.36
2019	287524	15.56

Source: China Academy of Information and Communications Technology.

Table 2 shows that, in 2014–2019, the digitization of the industry was further promoted and became an important force supporting the development of the national economy. The compound growth rate from 2014 till 2019 exceeded 19%. In 2019, the digital added value of China's industry reached 28.7524 billion yuan, a year-on-year increase of 15.56%, accounting for 29.0% of GDP.

Table 3. 2014–2019 China's internal structure of digital economy (unit: %)

Year	Proportion of digital industrialization, %	Proportion of digital industry, %
2014	73.9	26.1
2015	74.4	25.6
2016	77.0	23.0
2017	77.4	22.6
2018	79.5	20.5
2019	80.2	19.8

Source: China Academy of Information and Communications Technology.

Table 3 shows that, from 2014 till 2019, the proportion of China's digital industrialization was gradually decreasing, while the proportion of industrial digitalization was gradually increasing. In the 21st century, the digitalization level of China's major industries is getting higher and higher, and the digitalization trend of China's major industries is becoming more and more obvious. The digitalization level of China's insurance market is also getting higher and higher.

The artificial intelligence technology has been widely used in the Chinese insurance market, which is specifically reflected in the following aspects:

(1) The artificial intelligence technology at this stage is an important digital financial technology, which has improved the digital level of China's insurance market.

(2) The artificial intelligence technology has gradually expanded the online business of insurance companies, improved the online service level of large insurance companies, and met the wishes of the majority of insurance needs.

(3) The artificial intelligence technology provides an important guarantee for the rapid development of Internet digital insurance, and is an engine for the growth of Internet insurance.

(4) The artificial intelligence technology provides insurance companies with the function of intelligent sales, which makes insurance business promote faster and wider. The artificial intelligence technology is an extremely important intelligent service in the digital insurance market. Customer satisfaction has been greatly enhanced, providing a digital technology guarantee for the healthy development of China's insurance market. So, we can say that modern insurance companies have begun to try to apply the artificial intelligence technology to all aspects of insurance transactions, thereby improving production efficiency and promoting transactions. At the same time, traditional insurance companies often face the problems of information asymmetry and moral hazard. Artificial intelligence can solve the problem to a certain extent [9].

4. The companies' promotion of the blockchain technology for the insurance industry

Driven by the modern blockchain technology, the insurance industry has set off a wave of digitization, and the digital transformation of the insurance industry is imminent. Focusing on the future development trend of China's insurance industry under the wave of digital transformation, the analysis shows how the blockchain technology will affect and empower the insurance industry and drive the digital transformation of the industry (Figure 4).

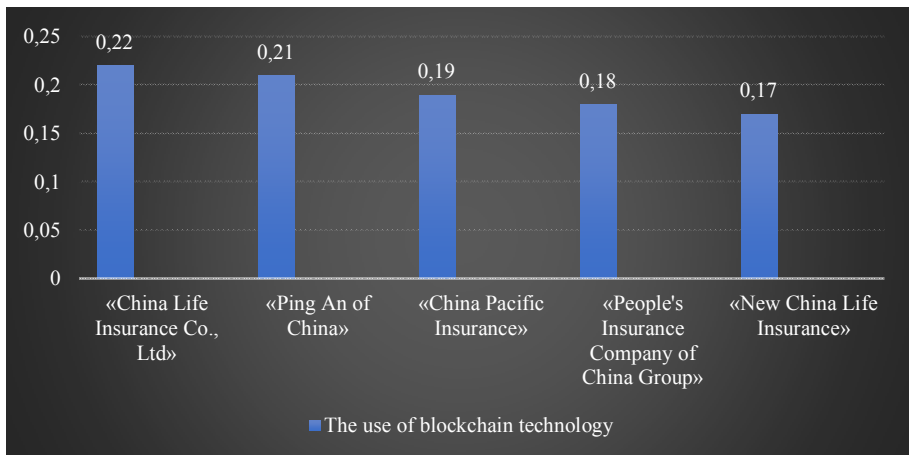


Figure 4. The use of the blockchain technology by the five leading companies in the total volume of transactions over the past 3 years (% in the total investment; compiled by the author based on the companies' reports)

The positive impact of the blockchain technology on the leading insurance companies includes: promotion of open insurance through collaboration and connection

of various participants; development of fragmented and scenario-based new insurance products; extension of services to improve customer satisfaction and risk management capabilities of insurance institutions; reduction of multiple repeated entry of the same information, repeated communication and confirmation across industries and institutions; effective improvement of business efficiency; reduction of the risk of insurance fraud and enhancement of insurance trust via multi-dimensional cross-validation of data at each node; automation of key processes, reduction of operating costs, and realization of inclusive insurance due to the characteristics of the blockchain technology and the operation of smart contracts. Smart contracts in the blockchain technology can provide customers and insurance companies with transparent, responsive and conclusive trivial process management [10].

The insurance industry is generally more conservative than banks and securities. The application of blockchain in the insurance field is not so fast, but the insurance field also pays close attention to this technology. In July 2015, the China Insurance Regulatory Commission issued the Interim Measures for the Supervision of Insurance Business, which clearly states that insurance institutions should strengthen customer information management, ensure that customer data are true and effective, and ensure the safety and legality of information collection, processing, and use. Customer information collected in the course of conducting Internet insurance business must be strictly confidential, must not be disclosed or used without the customer's consent for purposes other than the services provided. However, due to the lack of unified standards and management rules for information management and information protection, Internet insurance platforms are faced with great risks of information leakage. The blockchain technology uses a distributed intelligent identity authentication system to prevent information leakage on the basis of ensuring the authenticity of customer identity information. The customer mutually verifies the user name registered on the blockchain and other valid personal identity information and forms a "consensus" to realize the digital management of personal information. The risk of personal information loss and artificial tampering is also greatly reduced. With the help of the encryption technology, the customer's true identity information is concealed, and other node queries are limited to transaction information. Only the customer can obtain the identity information through their personal password, which can effectively protect personal information [11].

With the rapid development of emerging technologies such as cloud computing, big data, artificial intelligence, blockchain, Internet of Things, and biotechnology, the insurance industry has gradually begun to use these emerging technologies to transform existing businesses. In the 21st century, China's insurance industry has the following digital trends: the scenario-based R&D and sales of insurance products; the diversification of insurance services; precise pricing; marketing precision; convenient service [12].

The digital transformation revolution will bring huge development opportunities to the transformation of the traditional insurance industry. With the support of modern digital technology, China's insurance industry is undergoing digitization-driven changes of insurance formats [13].

From 2000 till 2020, China's premium income continues to increase, as shown in Figure 5.

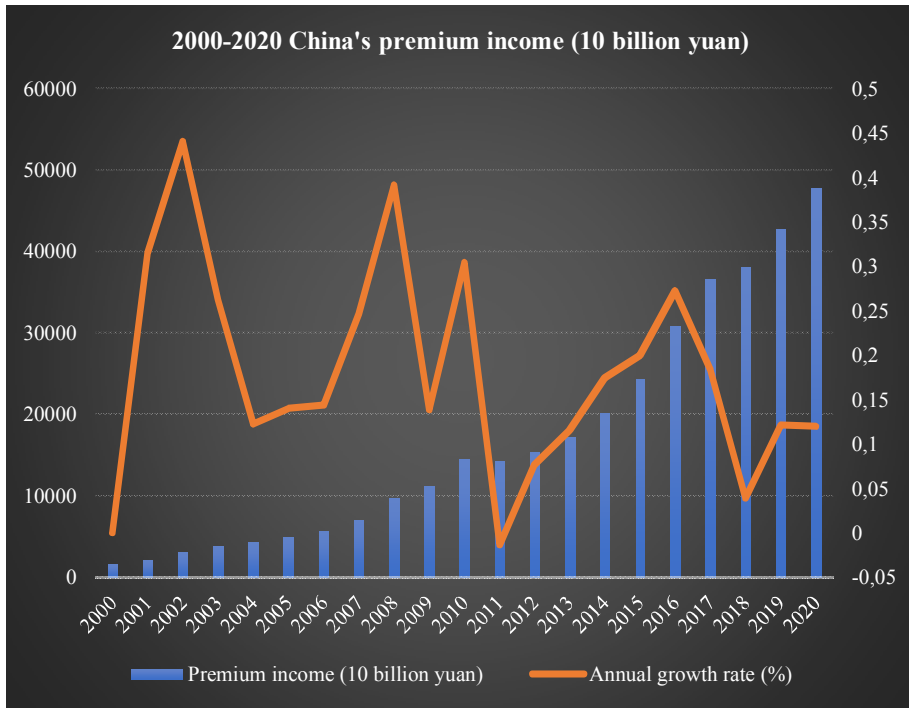


Figure 5. 2000–2020 China's premium income (10 billion yuan)

Figure 5 shows that the digital technology (big data, cloud computing, artificial intelligence, and blockchain) has promoted the rapid development of China's insurance industry and has entered a new stage of comprehensive development. China's insurance premium income has greatly increased from 2000 till 2020. There was a negative growth in premium income from 2010 till 2011, with the highest growth rate of 39.12% in 2008. The modern digital technology in the 21st century has promoted a tremendous development of the insurance economy and greatly contributed to the development of the national socialist market economy.

On the whole, China's insurance industry is developing steadily and improving, product protection functions are prominent, capital utilization income is increasing steadily, the digital technology is widely used; industry risk prevention and control capabilities have been enhanced. In 2020, the entire industry achieved a total of 47,762 billion yuan in original insurance premium income, 12.00% of year-on-year increase.

Specifically, the operation of the Chinese insurance market shows the following characteristics:

(1) Business development is stable and improving, and the level of risk protection is rapidly increasing. In 2020, China's insurance industry developed rapidly, but the growth rate slowed down.

(2) The allocation of insurance funds has become more optimized, and investment income has grown steadily.

(3) The application of the digital technology is increasingly widespread, and innovative businesses are developing rapidly; digital technology investment is increasing, and cutting-edge technologies (big data, artificial intelligence, cloud computing, blockchain, and mobile Internet) are widely used in product innovation, insurance marketing, internal companies management, and in other aspects. Relying on the rapid replacement of some standardized traditional insurance by Internet insurance and the incremental market brought by innovative products in scenarios, Internet insurance innovation business maintains rapid growth [14].

(4) Based on the national strategy, the ability to serve economic and social development is enhanced. In 2020, the insurance industry actively assisted the key areas and weak links of economic and social development, promoted digital technology innovation, maintained social stability, and continuously improved the efficiency and level of insurance services for the real economy [15].

The development of China's insurance industry in the digital age has the following problems:

(1) The digitization level of China's insurance industry is at a low level compared to Western developed countries.

(2) The traditional thinking of Chinese insurance organizations is relatively conservative.

(3) Chinese insurance companies lack highly specialized talents.

(4) The corporate culture of insurance companies lacks distinctive personality and is not recognized by the majority of employees.

(5) The level of the opening up of Chinese insurance companies in the digital age is relatively low.

(6) Insurance laws and regulations are not perfect.

(7) The efficiency and level of the insurance industry in serving the real economy is low.

(8) At this stage, China's insurance products are not rich enough [16].

Basic countermeasures to solve the problems of China's insurance industry in the digital age are the following:

(1) China's insurance industry must make full use of modern digital technology to improve the level of digitalization.

(2) Sino-Cuban insurance organizations must continuously enhance their sense of innovation and conform to the trend of the times.

(3) Chinese insurance companies need to train highly specialized talents.

(4) China's insurance industry should pay attention to the construction of insurance culture. Chinese companies should learn from the corporate culture of insurance companies in developed European countries and the United States, and their development experience, and also build a distinctive corporate culture until it is recognized by the majority of employees [17].

(5) In the digital age, Chinese insurance companies must continuously improve the level of their opening up to the outside world and connect with national borders [18].

(6) With the development of the insurance market, insurance laws and regulations must be continuously improved to conform to the social trend.

(7) The efficiency and level of China's insurance industry in serving the real economy must be continuously improved.

(8) China's insurance industry should actively expand and enrich its products.

At the 2016 China Insurance Regulatory Work Conference, it was pointed out that the Fifth Plenary Session of the 18th Central Committee of the Communist Party of China proposed the five development concepts of innovation, coordination, green development, openness, and sharing, which set the direction for the further development of the insurance industry [19].

First, China must adhere to innovative development and build a modern insurance service industry that is innovation-driven, full of vitality, and strong core competitiveness.

Second, China must adhere to coordinated development and build a modern insurance service industry that is for cross-border integration, regional coordination, and is compatible with economic and social development.

Third, China must adhere to green development and build a modern insurance service industry with efficient resource allocation, quality, efficiency, and sustainable development.

Fourth, China must stand on a global level, adhere to open development, and build a modern insurance service industry with complementary advantages, win-win cooperation, and global influence [20].

Fifth, China must adhere to shared development and build a modern insurance service industry with extensive coverage, high-quality and efficient services, and enhancement of people's well-being.

The digital technology is the main means to realize the development of the digital economy. The in-depth application of a new generation of digital technologies such as big data, cloud computing, artificial intelligence, and blockchain in the real economy has triggered systematic, revolutionary, and collective technological innovations and model changes in the traditional economy, opening up even broader development space for the digital economy. Since the global financial crisis in 2008, China and the United States have taken the lead in the digital technology, and a large number of technology companies have sprung up rapidly, effectively driving the rapid growth of the digital economy, especially in the digital fields such as artificial intelligence, big data, cloud computing, and blockchain, China, the developed countries in Europe, and the United States are in the same arena and occupy an important position [21].

Discussion

China's insurance industry is in the period of rapid development. At this stage, the digital technology is playing an increasingly important role. This

technology can prompt Chinese insurance companies to improve their digital service and greatly increase customers' satisfaction. The modern big data, cloud computing, artificial intelligence, and blockchain technologies have important functions in the development of the insurance industry. Insurance companies should improve their digital technology to cultivate a good corporate culture.

Chinese insurance companies have a traditional company system and can no longer adapt to the operations of modern insurance companies. Chinese insurance companies should strengthen cooperation with insurance companies in developed countries, learn their advanced digital technology and modern development strategies. The excellent corporate culture of insurance companies is conducive to promoting the reform and development of the insurance market. Thus, I can conclude that the emergence of cloud computing, big data, artificial intelligence, and blockchain has promoted the second information revolution – the data revolution – and entered the digital economy 2.0 era.

The world economy is accelerating the transition to economic activities with the digital economy as important content. China's digital economy has set sail, and the digital economy is bound to lead the new economic growth. The digital technology has promoted the rapid development of China's financial and insurance industry.

The modern digital technology has played an important role in promoting the stable development of the insurance industry, enhancing the international competitiveness of Chinese insurance companies; the gap between the development level of the Chinese insurance industry and the international insurance industry is gradually narrowing [22].

As one of the three pillars of the modern economy, the insurance industry is an important area of the modern economy. Since the reform and opening up of the People's Republic of China in the past 30 years, the insurance industry has maintained an average growth rate of more than 30%, which is the fastest and most developed in the national economy. Especially after China's accession to the WTO, the domestic insurance industry has accelerated the pace of internationalization, and China's insurance market has become more and more open to the outside world [20].

Since the beginning of the 21st century, the reform and development of China's insurance industry has achieved world-renowned achievements, and it has played an important role in promoting reforms, maintaining the economy, stabilizing society, and benefiting the people. Facing the future, China's insurance industry has a huge development potential and a broad development space. At present, China's insurance industry has entered the stage of transformation and development. With the development and application of emerging technologies (cloud computing, big data, artificial intelligence, and blockchain), digital technology is rapidly reshaping the insurance industry ecology [23].

China's insurance industry is in the stage of rapid development. With the support of the modern digital technology, the big data technology can realize insurance product innovation, optimize traditional products, improve actuarial quality, and promote changes in insurance product design and marketing [14].

The cloud computing technology promotes the shift of China's insurance industry to the digital trend, the continuous optimization of the insurance industry structure; the industry chain has become complete, which strongly supports the needs of the Chinese insurance market in the digital stage. The cloud computing technology is gradually expanding in the insurance field and exerting its due functions, improving the digital and network development in China's insurance field. The artificial intelligence technology is an important digital financial technology at this stage, which has improved the digital level of China's insurance market, gradually expanded the online business of insurance companies, and improved the online service level of large insurance companies. The artificial intelligence technology provides for the function of smart sales, which makes the insurance business faster and broader. The artificial intelligence technology is an extremely important intelligent service in the digital insurance market, which greatly enhances customers' satisfaction, provides a digital technology guarantee for the healthy development of the Chinese insurance market. The blockchain technology can improve the risk management capabilities of insurance institutions and greatly enhance customer satisfaction. The smart contracts by the blockchain technology can provide customers and insurance companies with transparent, responsive, and conclusive trivial process management.

Conclusion

The study has shown that digital technologies occupy a priority position in the investment portfolio of the five leading insurance companies in China, while the increase in the number of transactions in blockchain leads to the likely risk of an increase in speculative risk in the insurance market. Therefore, in parallel with the growth of the industry's digitalization, we are witnessing an increase in state control over this process in relation to the national currency.

The study has also shown that the Chinese insurance market is characterized by a tendency to rely primarily on the artificial intelligence technology: investments in this technology occupy the strongest positions in the investment portfolio of the leading insurance companies in China.

The research is novel since it analyzes specific data on the digitalization of the leading companies in the industry. The findings and results fully confirm the hypothesis of the study and can be used for further research in the field of insurance digitalization.

Generally, the development of the digital technology has caused profound historical changes in the Chinese insurance market, which bid farewell to the old era and quickly entered the new era. The market size is rapidly expanding. The degree of market openness has gradually increased. The market entities have further diversified. The system reform has taken a historic step. The business model is undergoing new changes.

References

1. Zlobin, E.V. & Sarychev, T.V. (eds) (2018) *Proceedings of the XIX International Scientific and Practical Conference: in 2 volumes*. S.l.: [s.n.]. pp. 31–35.

2. Anon. (2018) *Collection of International Economic Symposium*. Proceedings of International Conference. S.l.: [s.n.]. pp. 75–77.
3. Bloomberg. (2021) *Reports of 5 leading insurance companies of China*. [Online] Available from: <https://www.bloomberg.com/profile/company/601336:CH> (Accessed: 17.07.2021).
4. Zhao Zhanbo. (2017) *Internet Insurance*. Beijing: Capital University of Economics and Business Press.
5. Xu Chen, Wu Dahua, Tang Xinglun. (2017) *Digital Economy: New Economy, New Governance, New Development*. Beijing: Economic Daily Press. pp. 57–59.
6. Ma Yongren. (2019) *The Principle and Application of Blockchain Technology*. Beijing: China Railway Publishing House. pp. 68–70.
7. Ma Huateng. (2017) Digital Economy – China’s new growth momentum for innovation. Beijing: CITIC Publishing Group. pp. 54–55.
8. Gao Hang, Yu Xueli, Wang Maolu. (2018) *Blockchain and Artificial Intelligence: Digital Economy Era*. Beijing: Electronics Industry Press. pp. 312–313.
9. Su Jie. (2017) *Nuggets Internet Insurance*. Beijing: China Finance Press. pp. 224–225.
10. Nicoletti, B. & Cheng Hua. (2018) *The future of financial technology: the integration of financial services and technology*. Beijing: People’s Posts and Telecommunications Press. pp. 209–211.
11. Xu Zhong, Sun Guofeng, Yao Qian. (2017) *Financial Technology: Development Trends and Regulation (Jinrong Keji: Fazhan Qushi yu Jianguan)*. Beijing: China Finance Press. pp. 16–17.
12. China Finance Press. (2018) *China Insurance History*. Beijing: China Finance Press.
13. Institute of Information, Shanghai Academy of Social Sciences. (2020) *Digital Economy Blue Book: Global Digital Economy Competitiveness Development Report*. Institute of Information, Shanghai Academy of Social Sciences. pp. 37–51.
14. Information Institute of the Shanghai Academy of Social Sciences. (2017) *Blue Book of the Digital Economy: Report on the Development of the Competitiveness of the Global Digital Economy*. Information Institute of the Shanghai Academy of Social Sciences. pp. 17–38.
15. Kou Yefu. (ed.) (2019) *China Insurance Company Competitiveness Evaluation Research Report*. Beijing: China Economic Publishing House. pp. 17–18.
16. Zhao Zhanbo. (2017) *Internet Insurance*. Beijing: Capital University of Economics and Business Press. pp. 52–53.
17. Grebenshchikov, E.S. (2017) The insurance market of China: rates, scales and experiments. *Finance*. 1. pp. 38–44.
18. Institute for Financial Research. (2018) *Blockchain: Opportunities and Risks in the Era of the Digital Economy*. Beijing: People’s Publishing House. pp. 16–27.
19. Kou Yefu. (2017) *Blue Book of Insurance: Analysis of China Insurance Market Development*. Beijing: China Economic Publishing House. pp. 271–273.
20. Yang Shanghai. (ed.) (2018) *Principles of insurance*. Beijing: Beijing Jiao tong University Press; Tsinghua University Press. pp. 263–267.
21. Shen Jianguang et al. (2021) *Industry digitalization: Driving China’s economy to create new models, new tracks and new ecology*. Beijing: CITIC Press. pp. 16–17.
22. Xu Chen, Wu Dahua & Tang Xinglun. (2017) *Digital Economy: New Economy, New Governance and New Development*. Beijing: Economic Daily Press. pp. 3–5.
23. The Research Group of China Information Technology Association. (2018) *Digital Economy: Towards a New Stage from Quantitative Change to Qualitative Change*. Beijing: Electronics Industry Publishing. pp. 33–34.

Современные цифровые технологии в страховой индустрии Китая

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Ключевые слова: цифровые технологии, страховая отрасль Китая, технология больших данных, технология облачных вычислений, технология искусственного интеллекта

Актуальность исследования обусловлена тем, что цифровая экономика стала важным стратегическим направлением развития Китайской Народной Республики, а также новым двигателем экономического роста. В статье демонстрируется положительное влияние цифровых технологий на развитие страховой отрасли Китая. Автор доказывает, что уровень развития страховой отрасли зависит от степени экономического развития региона. Целью исследования является выявление влияния цифровых технологий на развитие страховой отрасли Китая на современном этапе. Автор анализирует общие тенденции в сфере современных цифровых технологий Китая в XXI в., влияние цифровых технологий и технологий облачных вычислений и искусственного интеллекта на динамичное развитие страховой индустрии Китая. Автор определяет, что цифровые технологии способствовали и ускорили развитие страховой индустрии Китая в аспекте цифровизации. На этом этапе страховая отрасль Китая сталкивается с большими возможностями и проблемами.