SYSTEMATIC REVIEW ON ARTIFICIAL INTELLIGENCE(AI) ENABLED INSURANCE SECTOR

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ABSTRACT

This study looks into the application of AI technology in the insurance industry, Through a systematic literature review, the study initially sorts out the status and progress of existing studies on the application of AI based on risk assessment, claims processing, customer service, and product personalization. Followed by additional analysis on the relevance of the data in terms of content analysis, the role and potential challenges of AI technology in enhancing operational efficiency, improving customer experience, and strengthening risk management. The results of the review showed that the wide application of AI not only improves the intelligence of insurance but also provides support for the long-term competitiveness of the industry. Eventually the study concludes with the future of AI applications in insurance and suggests solutions in line with data privacy, technical barriers, and algorithmic bias.

INTRODUCTION

With the rapid advancement of digital technologies, artificial intelligence (AI) has emerged as a transformative force across various industries, including the insurance sector (Kumar & Singh, 2021). The integration of AI into insurance is reshaping traditional business models, optimizing risk assessment, claims processing, and customer service while enhancing operational efficiency (Zhang, 2020). Given the increasing reliance on AI-

driven solutions, it is essential to systematically examine its applications, challenges, and future directions in the insurance domain (Zhou, et al., 2018). To provide a comprehensive understanding of this evolving field, this paper begins by exploring the background and significance of AI-enabled Internet insurance.

Research Background

Driven by the wave of the digital era, artificial intelligence (AI) technology is exerting far-reaching impacts on various industries at an unprecedented rate, especially in the field of insurance (Zhang, 2020). AI in the insurance sector is a product of integration between the traditional insurance industry and modern Internet technology. Thus, it provides efficient and convenient insurance services through an online platform. It has gradually become an indispensable part of people's lives. However, with the rapidly increasing diversification of consumer demand and fierce market competition, service quality and operational efficiency has become key issues that insurance companies need to address. The introduction of artificial intelligence technology provides new perspectives and strategies for solving these problems (Li & Chen, 2021).

Research Status and Application Scenarios

Currently, the application of artificial intelligence in the field of insurance is mainly reflected in various aspects such as risk assessment, customer service, and claims processing. In-depth analysis on large amount of historical data through machine learning models improves the accuracy of risk prediction and achieves a more personalized pricing strategy (Lee, 2021); the application of natural language processing technology helps to develop chatbots and virtual assistants capable of communicating with the user, thereby enhancing the user experience and ensuring 24/7 service (Vaishnavi & Smitha, 2023); the application of image recognition technology in the claim process can automate loss assessment and effectively reduce

processing time (Johnson & Liu, 2022). Based on these advanced technologies, internet insurance, empowered by artificial intelligence, not only optimizes the internal operation process but also provides consumers with more convenient and efficient services.

PROBLEM STATEMENT

Although AI technology brings significant growth potential to the insurance industry, its practical application is accompanied by a series of challenges, including data privacy protection, algorithmic bias, and regulatory compliance. In terms of data privacy protection, insurance companies must ensure the security of customer information to avoid data leakage or improper use (Garcia & Patel, 2020); the problem of algorithmic bias may lead to unfair insurance services, which in turn affects customer satisfaction (Kumar & Singh, 2021). Meanwhile, as policies and regulations continue to improve, insurance companies also need to strictly follow relevant laws and regulations to achieve a balance between technological innovation and compliance requirements.

RESEARCH OBJECTIVES

The research objectives of this study aim to,
a. summarize the core applications of AI in the field of insurance and its historical research progress.
b. summarize the challenges and limitations faced in the application of AI in the insurance sector.
c. discuss how AI technology can promote the innovative development of insurance industry in the future and achieve a balance between technological breakthroughs and market demand.

METHODOLOGY

To ensure a comprehensive and systematic review of AI-enabled insurance, the study adopted a structured research methodology. The approach identified, selected and analyzed

relevant literature, ensuring that the findings accurately reflect the current state of research in this field. The following sections outlined the data sources, search strategies, and analytical methods used to conduct this paper.

a. Data Sources and Search Strategies

This paper focused on the topic of insurance enabled by artificial intelligence and conducts a systematic literature search based on authoritative academic databases and platforms to ensure the breadth and authority of the research.

b. Database Selection

To ensure the quality and comprehensiveness of the academic literature, this study primarily draws on the major academic databases: Web of Science, Scopus, Google Scholar, ResearchGate, and Citexs for literature retrieval and analysis. In addition, the study also referred to international insurance regulators and industry reports to enhance the industry's context of the research.

c. Keywords and search strategy

To ensure a comprehensive literature search, the analysis used a combination of multidimensional keywords includes,

(1) core concepts: insurance, online insurance, web insurance, cyber insurance, digital insurance,
(2) artificial Intelligence related: Artificial Intelligence, AI, machine intelligence, computational intelligence,
(3) technology-related: machine learning, deep learning, NLP, computer vision.

The search is done using Boolean logic operations, for example: ("Artificial Intelligence" OR "Machine Learning" OR "Deep Learning") and ("Internet Insurance" OR "Online Insurance" OR "Digital Insurance").

d. Time frame

The time frame set from January 2014 to October 2024, covers the latest research advances in Artificial Intelligence in insurance over the last decade.

e. Data Cleaning

In order to ensure the high quality, relevance, and representativeness of the data, the study conducted a rigorous screening of the literature in the preliminary search with the following steps:

(1) Language filtering: Only English language literature was retained to ensure broad applicability for international scholarly communication.

(2) Literature type filtering: Preference was given to peer-reviewed (peer-reviewed) journal papers and published international conference papers. All informal publications (e.g., preprints, blog posts) were excluded.

(3) Relevance Screening: Exclude papers that do not fit the research topic, e.g., studies that only deal with traditional insurance and not insurance that use AI application.

(4) Data cleaning: Removing duplicates, and outdated literature (e.g., pre-2014) to ensure that the data were current.

(5) Topic classification: Based on keyword analysis, the literature was classified into different subfields, such as risk assessment, customer service, claims handling, product innovation, etc., for subsequent in-depth analysis.

In conclusion, a total of 550 high-quality literature were screened, covering various levels of theoretical research, empirical research, and industry applications, and further extracted 30 high-impact literature as the core research basis of the review. These papers were chosen based on citation impact,

relevance to AI-enabled Internet insurance, and publication in peer-reviewed journals. The selection process involved filtering from major academic databases, including Web of Science, Scopus, and Google Scholar. The final selection was based on a systematic content analysis approach, focusing on key themes such as AI applications, risk assessment, claims processing, and personalized insurance products.

Literature Data Analysis and Visualization

In order to comprehensively reveal the research trends of artificial intelligence in the field of insurance, this study conducts systematic data analysis of relevant academic literature and uses visualization tools to present research hotspots and development directions.

a. Main analysis dimensions

(1) Research Trends: Counting the number of literatures published in different years and identifying the development pulse of the field.

(2) Distribution of Research Countries and Institutions: Analyze the high-yield scholars, major research institutions, and research cooperation patterns among countries.

(3) Academic Influence Analysis: Assess the academic influence of important papers and scholars based on indicators such as total citation frequency.

(4) Keywords and Research Topics Analysis: To identify research hotspots through keywords analysis and to explore the core application areas and future trends of AI technology in insurance.

b. Data analysis tools

In order to enhance the effect of data visualization, this study used a variety of academic tools for analysis and presentation, including:

(1) R package bibliometrics: Literature data analysis (e.g., high-impact paper identification, keyword analysis, collaborative network analysis, etc.).

(2) VOSviewer: Visualizing research hotspots, keyword networks, and academic collaborations, facilitating the visual presentation of the structure of the research field.
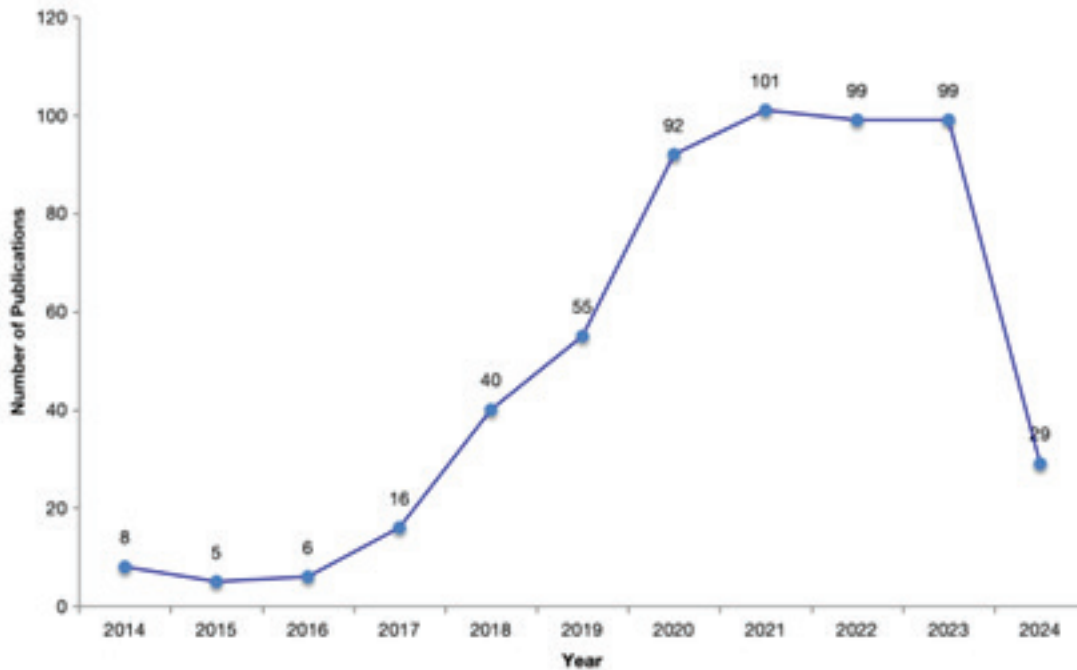
(3) CiteSpace: Time series analysis to reveal how research topics in the field evolve over time and predicting future trends.

FINDINGS

The analysis of AI-enabled insurance research provided valuable insights into its development, key focus areas, and existing gaps. By examining the selected literature, this study identified major trends, influential contributions, and emerging research directions. The following sections presented the characteristics of the identified literature, highlighting publication trends, geographic distribution, and core research themes.

Characteristics of Identified Literature

With the rapid development and continuous progress of information technology, insurance, as a key branch in the field of financial technology, is gradually showing its unique charm and great growth potential. Through an exhaustive search and in-depth study of academic literature on the application of AI in insurance during the period, January 2014 to October 2024, the study found that the total number of research documents in this field reached 550 articles. These figures not only fully reflect the heat and wide attention of AI-enabled insurance research but also predicted that this research field will continue to expand and deepen. With the continuous progress and innovation of technology, the combination of AI and insurance was expected to usher in more breakthroughs and changes, injecting new vitality and momentum into the entire fintech field.

Figure 1 Annual trends in publications in AI-enabled Internet insurance literature (2014 - 2024)
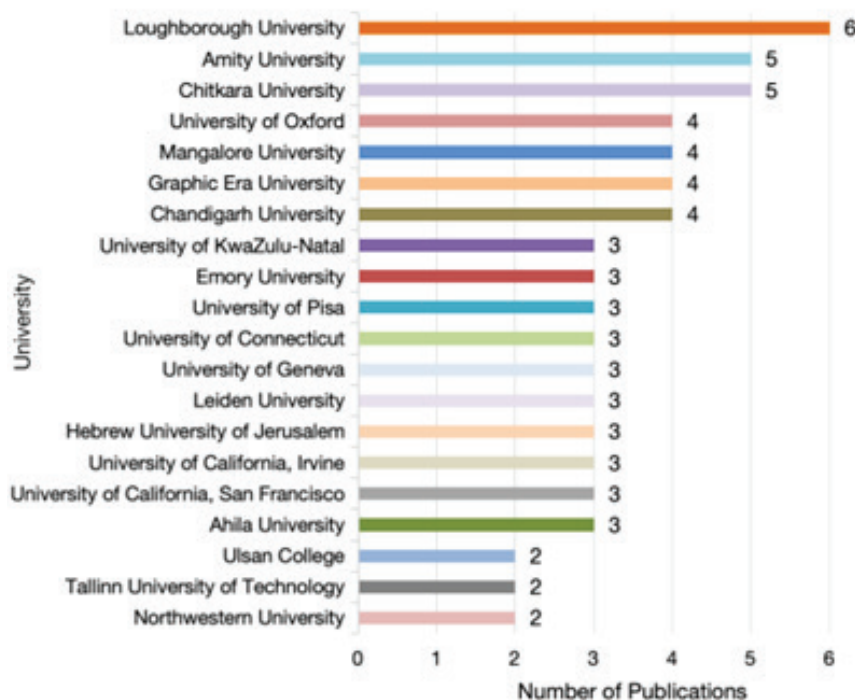Source: Bibliometric analysis was performed using the citexs website (https://www.citexs.com/)

As can be seen in Figure 1, the annual number of articles in the field of AI-enabled insurance showed a significant growth trend between 2014 and 2024. The number of articles from 2014 to 2016 was low, with less than 10 articles per year. Since 2017, the number of publications has gradually risen, with a growth rate of more than 200% in 2017 and 2018, marking the beginning of accelerated research in the field. From 2017 to 2021, the number of articles shows rapid growth, especially in 2021, when it reached a peak of 101 articles. The number of articles from 2021 to 2023 is maintained at about 100 articles, and the growth in this stage reflects that the research on the integration of insurance and artificial intelligence has gradually become a hotspot of academic attention. By 2024, there was a significant decline in the number of articles issued, with only 29 articles, mainly since the data on the number of articles issued in 2014 was counted for only 10 months. In addition, it indicated a gradual leveling of research fervor or a change in the direction of research within the field. Overall, the figure reflected the trend of rapid emergence and gradual maturation of insurance and AI-related research over the past decade.

Productivity and impact by author and institution

From Figure 2, it can be seen that Loughborough University is at the top of the list of institutions globally in the field of research related to AI-enabled insurance from January 2014 to October 2024, with 5 articles published. Amity University and Chitkara University were at the top of the list with two had 5 articles published, indicating that these two Indian universities were more active in this research area. They were followed by four universities, including the University of Oxford, which also published four articles and ranked third.

Other important research institutions include the University of Pisa, University of KwaZulu-Natal, Hebrew University of Jerusalem, etc., showing the research investment of these universities in the field of digital insurance and artificial intelligence. Overall, there was a wide distribution of research institutions in this field, ranging from universities from countries such as India, the UK, and South Africa, as well as renowned universities from China, the US, and Japan, reflecting the global interest in the combination of digital insurance and AI.

Figure 2 Analysis of research organizations in AI-enabled Internet insurance literature (2014 - 2024)
Source: Bibliometric analysis was performed using the Citexs website (https://www.citexs.com/)

By analyzing the top authors worldwide in terms of publications in the field of AI-enabled insurance research for the period 2014 to 2024, the study found that the author with the highest output of literature in this field of research is Gagan Kukreja, with a total of three publications to date; Iryna Fedorovych, Karuna Pande Joshi, Christian Eckert, Sudip Mittal, Yaron Ilan, Charu Saxena, Madhu Rajeshwari, Marvin Chia-Han Yeh, Ruchika Gupta, Diane J. Skiba, Sachin Sharma, Martin Mullins, Kuan-Jen Bai, Barry Sheehan, Hsiao-HanWang, Lothar Determann, Katrin Osterrieder, Himanshu Rai Goyal, Yu- Chuan Li, Juliane Ressel, Martin Cunneen, Dusty-Lee Donnelly, Emer Owens, and Halyna Kulyna were tie in second place, with two publications; Seong Ho Park, Jie Ding, Jothydev Kesavadev, Philip Treleaven, and Shuangyi Sun were also tie in third place, with one publication published.

In summary, the development of the global AI-enabled Internet insurance research field has shown vigorous vitality, and research institutions and authors in many countries have actively invested in research resources, providing solid support for the healthy progress of the industry.

Country production

As can be seen in Figure 3, the global distribution of research showed a clear regional pattern. The size of the blue circles in the figure represent the number of research publications from each country — the larger the blue circle, the higher the number of publications. India has the highest number of publications in this field, with a total of 53 articles, accounting for 17.73%, indicating that India has invested more research resources and attention in the field of digital insurance and AI insurance. Followed by the US with 36 publications or 12.04%; the US, being a leading country in the field of technology and insurance, was also very active in research activities in this area. In third place was the United Kingdom, with 25 articles published, accounting for 8.36%, indicating that the country has a large academic investment in fintech and Insurtech.

Globally, North America, Europe, and Asia had the concentration of research in this field. North America was mainly represented by the United States, while in Europe several countries have made significant academic contributions in this field, manifesting a denser distribution of bubbles. Research hotspots in Asia were mainly concentrated in India, while there was also some research activity in East and Southeast Asia. In addition, Australia in Oceania also has some research results in this field. Overall, the figure showed that developed countries were more active in academic activities in the field of digital and AI based insurance, while some emerging market countries, such as India, were gradually becoming important contributors in this field.

Figure 3 Country analysis of AI-enabled Internet insurance literature studies (2014 - 2024)

Source: Bibliometric analysis was performed using the Citexs website (https://www.citexs.com/)

Note: The size of the blue circles represent the number of research publications from each country — the larger the circle, the higher the publication count.

In summary, the global research distribution in digital and AI-enabled insurance exhibits distinct regional characteristics, with India leading in the number of publications, followed by the United States and the United Kingdom. North America, Europe, and Asia serve as the primary research hubs, with the United States dominating North America, multiple European countries actively contributing, and India standing out in Asia. Additionally, Australia has made some academic contributions. Overall, developed countries remain at the forefront of research in this field, while emerging markets like India are increasingly playing a significant role in shaping the academic landscape of digital and AI insurance.
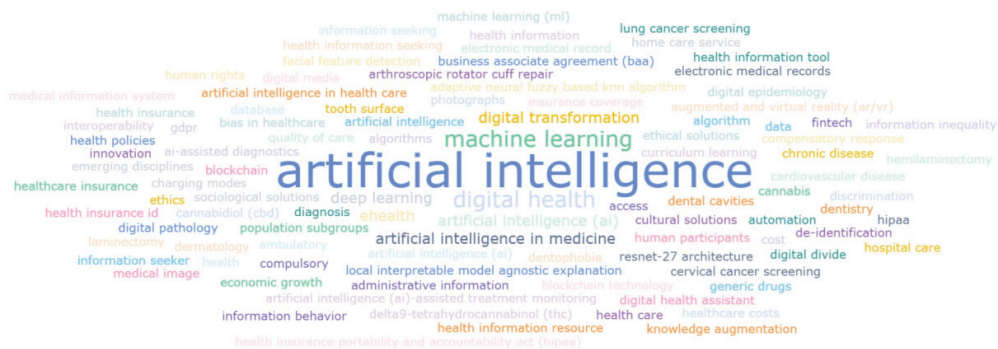
Research topics and trends

During the study period, a total of 550 papers were retrieved using keywords related to insurance, online insurance, web insurance, cyber insurance, digital insurance, artificial intelligence (AI), machine intelligence, and computational intelligence. The distribution of research publications across different journals indicated that the Social Science Research Network had the highest number of publications, with 31 articles, highlighting its strong focus on fintech and Insurtech research. Radiolog* ranked second with 8 publications, suggesting an intersection between AI-enabled insurance and medical imaging in health insurance applications. The Lancet Digital Health followed closely with 6 publications, reflecting the growing academic

interest in AI's role in digital health insurance and risk assessment.

The analysis of keywords provided valuable insights into the evolution of research themes and the emerging hotspots in AI-enabled insurance. Keywords served as a concise summary of research objectives, target subjects, and methodologies. By examining high-frequency terms, the study traced the thematic development and key areas of focus within the field. As shown in Figure 4, based on keyword frequency analysis, the top five most frequently occurring keywords in AI-enabled insurance research were artificial intelligence, digital health, machine learning, artificial intelligence in medicine, and risk assessment. These keywords not only highlighted the primary research themes but also underscored the significant role of AI in transforming the insurance industry. The high occurrence of "digital health" and "artificial intelligence in medicine" suggested a strong academic and industry focus on AI applications in health insurance, risk modeling, and automated claims processing. Furthermore, the prevalence of machine learning as a keyword indicated the increasing use of predictive analytics and data-driven decision-making in Internet insurance.

Figure 4 Analysis of keyword and hotspot word frequency in AI-enabled Internet insurance literature from 2014 to 2024

Source: Bibliometric analysis was performed using the Citexs website (https://www.citexs.com/)

Overall, the keyword analysis reflected the rapid expansion of AI applications in insurance, particularly in health insurance, risk assessment, and smart claims processing. This trend suggested that future research in this domain will continue to explore how AI-driven technologies can enhance risk prediction, streamline insurance operations, and improve customer experience in the digital insurance ecosystem.

DISCUSSION

A thematic analysis was conducted to identify recurring research topics, technological trends, and methodological approaches. Papers were categorized into four main areas: AI applications in risk assessment, claims processing, customer service, and product personalization. Additionally, a qualitative content analysis was performed to examine how AI is integrated into insurance and its associated challenges. An analysis of the selected 30 papers revealed that AI applications in risk assessment and claims processing were the most extensively studied areas, accounting for 60% of the selected literature. Studies such as Gupta, Rani, and Kumar (2018) demonstrated how deep learning models enhance risk prediction, while Davenport and Ronanki (2018) explored the integration of AI-driven chatbots for customer service. However, only a few papers, such as Zhou and Yang (2018), addressed the regulatory challenges of AI-enabled insurance, indicating a gap in the literature.

Research Trend Analysis

In recent years, research on the application of Artificial Intelligence (AI) in the field of Internet insurance has shown a trend of rapid growth, especially in the areas of risk assessment, claims processing, customer service, personalized insurance products, etc., which dominated the research (Chui et al., 2018; Gupta et al., 2018; Huang & Rust, 2021). In terms of keyword analysis, high-frequency keywords included artificial intelligence, digital health, machine learning, application of AI in medicine, risk assessment, etc., which indicated that AI has become a hotspot of academic and industry attention in the fields of health insurance, risk modeling, and smart claims (Brynjolfsson & McAfee, 2017; Kumar & Singh, 2021).

In terms of global research distribution, North America, Europe, and Asia were the major research centers in this field (Zhang, 2020). The United States, as a leader in technology and insurance, has actively promoted the application of AI technology in the insurance industry, especially in automated claims handling and smart pricing, which has made significant progress (Davenport & Ronanki, 2018). The rapid development of financial technology (Fintech) and insurance technology (Insurtech) in the UK has also fueled related academic research (Huang, 2020). Notably, the number of research papers in India has grown significantly in recent years, suggesting that emerging market countries were increasing their investment in AI-enabled insurance (Cheng, 2017).

However, despite the significant progress that has been made in the application of AI in insurance, there were still many research areas that have not been fully explored. For example:

(1) Application of AI in insurance anti-fraud: Although AI plays an important role in risk assessment and pricing, how to improve the accuracy of fraud detection through deep learning and big data analysis remains a challenge (Chui et al., 2018).

(2) Research on regulation and compliance of AI: With the development of AI technology, how to ensure the transparency and fairness of AI algorithms, prevent algorithmic discrimination, and comply with the regulatory requirements of different countries remains an issue worthy of in-depth research (O'Neil, 2016).

(3) AI-driven insurance ecosystem: In the future, how to build an open Internet insurance ecosystem that enables the deep integration of AI, blockchain, fintech, and other technologies to improve the overall operational efficiency of the industry is a direction that deserves attention (Manyika et al., 2019).

Core Contributions of AI in the Field of Insurance

The application of AI technology in insurance has greatly improved the intelligence level of the industry, which is mainly reflected in the following aspects:

(1) Risk Assessment and Pricing.

AI technology enables insurers to deeply mine massive amounts of data so as to optimize risk assessment models and improve the fairness and accuracy of pricing. For example, deep learning combined with regression analysis models can effectively predict the risk level of policyholders, enabling insurers to offer customized premium plans based on individual risk (Gupta et al., 2018; Kumar, 2021). This technological breakthrough not only reduces the risk of adverse selection but also improves the profitability of insurance companies (Gandomi & Haider, 2015).

(2) Intelligent Claims Processing.

The use of AI in claims processing has significantly improved processing speed and accuracy. Through computer vision and natural language processing technologies, AI can automatically analyze insurance claim documents, reducing the time spent on manual

review and increasing efficiency. In addition, AI can use anomaly detection technology to identify potential fraud and reduce insurers' losses due to fraud (Chui et al., 2018; Smith & Wallace, 2019).

(3) Customer Service and User Experience Optimization.

AI-powered intelligent customer service systems enable insurers to provide 24/7 round-the-clock service, reducing customer wait times and increasing satisfaction (Davenport & Ronanki, 2018). For example, virtual assistants equipped with Natural Language Processing (NLP) technology can quickly answer users' common questions and provide precise guidance for complex issues (Chui et al., 2018). The application of such technology not only improves the efficiency of customer interaction but also enhances user stickiness (Huang & Rust, 2021).

(4) Personalized Insurance Products

By analyzing customers' behavioral data and consumption patterns, AI can help insurance companies provide personalized insurance solutions (Brynjolfsson & McAfee, 2017). This innovation not only improves user experience but also enhances customer loyalty and market competitiveness. For example, AI can recommend personalized health insurance products based on user's health data and lifestyles, increasing user stickiness (Huang & Rust, 2021).

Policy and Practical Recommendations

The application of AI in the Internet insurance industry is developing rapidly, but it is also facing issues such as data privacy, algorithmic fairness, technical barriers, and regulatory challenges (Zhou, Fu, & Yang, 2018). In order to ensure the safe, efficient, and fair application of AI technology and promote the sustainable development of the industry, all parties should take active measures in terms of policy, law,

technology, and industry standards. This part puts forward the following policy and practice recommendations to promote the healthy development of the AI-enabled Internet insurance industry.

Strengthening data privacy protection and regulatory compliance is key to the development of the AI insurance industry. The widespread use of AI systems in the insurance business has led to the need for insurers to handle a large amount of sensitive personal information, including health data, financial records, and user behavioral patterns (Li & Chen, 2021). If data is leaked or misused, it not only affects consumer trust, but may also lead to legal liability (Zhou, Fu, & Yang, 2018). Countries should draw on the General Data Protection Regulation (GDPR) and California Consumer Privacy Act (CCPA) to formulate insurance data protection regulations that meet the characteristics of their markets (Cheng et al., 2017).

At the same time, insurance companies should adopt technologies such as end-to-end encryption, distributed storage, and privacy computing to ensure the confidentiality of user data (Garcia & Patel, 2020) and conduct regular data security checks to ensure that data is handled in a way that complies with legal requirements (Kumar & Singh, 2021). For example, the European insurance industry has widely adopted the GDPR standard for strictly encrypted storage and authorized management of user data (Barocas & Selbst, 2016), while the Personal Information Protection Law, introduced in China, also strengthens the regulation of insurers' data collection and use (Zhang, 2020).

Lowering the technical threshold of AI applications and promoting industry standardization is crucial to driving the intelligent development of the insurance industry. Although AI technology is revolutionizing the Internet insurance industry, small and medium-sized insurance companies

still face high development costs, talent shortages, and technical integration difficulties when adopting AI technology (Brynjolfsson & McAfee, 2017). To enable this, governments and industry alliances can provide financial support to encourage insurance companies, technology companies, and research institutes to jointly develop AI technologies (Curry et al., 2020). In addition, promoting open-source AI insurance solutions, such as the development of common AI models, can lower the technical barriers for insurers in terms of algorithm development (Makridakis, 2017). In order to further promote the application of AI in the insurance industry, countries should also strengthen the development of industry guidelines such as insurance data interface standards and AI risk control specifications (Huang & Rust, 2021). Currently, the Financial Conduct Authority (FCA) of the UK has issued AI application guidelines to help insurers use AI technology safely while ensuring compliance (Davenport & Ronanki, 2018). Meanwhile, Singapore's FinTech Regulatory Sandbox allows insurers to test AI insurance products in a controlled environment, reducing the cost of trial and error for SMEs (Chui et al., 2018).

In addition, promoting the convergence of AI and blockchain to improve insurance data transparency will help enhance the credibility of the insurance industry. The insurance industry still suffers from problems such as data opacity, susceptibility to tampering, and difficulty in cross-agency collaboration in the process of data storage, risk assessment, and claims settlement (Manyika et al., 2019). The introduction of blockchain technology enables a decentralized method of storing data, ensuring its security and immutability (Gandomi & Haider, 2015). The government can encourage insurance companies to adopt blockchain technology through tax incentives or technology subsidies to enhance data transparency (Barocas & Selbst, 2016). In addition, the use of blockchain smart contracts can automate

the execution of insurance claims, reducing manual intervention and improving claims efficiency (Kumar & Singh, 2021). Currently, Ping An Insurance Company of China has used blockchain technology to optimize the health insurance claims process and improve data transparency (Zhang, 2020), while IBM's blockchain-based insurance data storage platform, launched in collaboration with AXA Insurance Company, has greatly improved the security of user data (O'Neil, 2016).

Finally, building an open access insurance ecosystem is an important trend in the future development of the insurance industry. With the widespread adoption of AI technology, the insurance industry is shifting toward digitalization and platform-based development. In the future, a more open insurance ecosystem may emerge, encompassing insurance companies, technology firms, and financial technology (FinTech) companies, among others. (Chui et al., 2018). To promote this trend, insurance companies should cooperate closely with technology companies and financial institutions to develop smart insurance products (Huang & Rust, 2021). In addition, the government can develop API data interface standards so that insurance companies and external technology companies can work seamlessly together to improve the efficiency of industry synergy (Thompson & Lee, 2016). Due to the globalized nature of Internet insurance and the varying regulatory requirements in different countries, it is necessary to promote global insurance regulatory coordination to avoid legal conflicts (Zhou, Fu, & Yang, 2018). Currently, US Lemonade Insurance Company has constructed a full digital insurance ecosystem through AI and blockchain technology to realize claims in seconds (Garcia & Patel, 2020), while Chinese Ant Insurance has constructed an open insurance platform to form a one-stop insurance ecosystem by cooperating with banks, insurance companies, and AI companies (Zhang, 2020).

Limitations of the Research Methodology

Even though this adopted a variety of data analysis methods and combines visualization tools to reveal the trend of AI applications in the insurance sector, there are still some limitations:

(1) Limitations of data sources

This study mainly relied on academic databases such as Web of Science, Scopus, Google Scholar, etc., but it may have missed some industry white papers, government reports, and corporate research reports, which were non-academic data that may provide more cases of practical applications and market trends.

(2) Limitations of period

This research covered a duration of 11 years from 2014 to 2024, although it covered the main research results in recent years. Due to the rapid development of AI technology, some of the findings may be updated by new technologies in the short period.

(3) Limitations of data quality and representativeness
Although this paper screened high-impact papers as the core research base, some studies may be biased due to the limitation of data sources.

CONCLUSION

Based on a systematic literature review, this study provided an in-depth exploration of the research on AI in the field of insurance over the past decade. We found that global research on AI-enabled insurance showed a wide geographical distribution and diversified development trend, with North America, Europe, and Asia being the major research centers in the field (Zhang, 2020). The research

in each country has jointly promoted the deep integration and innovative development of AI and Internet insurance, providing strong support for the sustainable development of the industry (Davenport & Ronanki, 2018).

On the basis of literature collation and analysis, this study selected the 30 most representative core literature in the past decade, systematically combs through the definition and technological background of AI-enabled Internet insurance and comprehensively analyses its application in the areas of risk assessment, claims processing, customer service, and personalized insurance products (Gupta et al., 2018; Kumar, 2021). In addition, the study delves into the challenges facing AI in the insurance industry, including data privacy issues, technological barriers, algorithmic bias, and regulatory compliance (Barocas & Selbst, 2016; O'Neil, 2016). Finally, the study looked ahead to future technology innovation trends and ecosystem building, pointing out that the in-depth application of AI will propel the insurance industry toward a more open, collaborative, and intelligent direction (Huang & Rust, 2021).

The researcher identified risk assessment and claims automation as the most extensively studied areas (Gupta et al., 2018; Kumar, 2021). The findings underscored AI's potential to enhance efficiency, reduce costs, and improve customer experiences in the insurance sector (Davenport & Ronanki, 2018; Huang & Rust, 2021). However, research in this field remains fragmented, with limited discussions on ethical concerns, regulatory challenges, and AI adoption in emerging economies (Barocas & Selbst, 2016; O'Neil, 2016; Zhou, Fu, & Yang, 2018). Future studies should bridge these gaps by incorporating interdisciplinary perspectives and real-world case studies to improve AI's practical applicability in the insurance sector (Manyika et al., 2019; Zhang, 2020).

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