DIGITAL TRANSFORMATION OF THE INSURANCE SECTOR - DEVELOPMENT GUIDELINES

Damian Walczak
Faculty of Economic Sciences and Management, Nicolaus Copernicus University in Toruń, Toruń, Poland *dwalczak@umk.pl*

Anna Bera
Faculty of Economics, Finance and Management, University of Szczecin, Szczecin, Poland *anna.bera@usz.edu.pl*

Dariusz Pauch
Faculty of Economics, Finance and Management, University of Szczecin, Szczecin, Poland *dariusz.pauch@usz.edu.pl*

Abstract

Changing economic conditions and technological challenges are shaping the future of the insurance industry. Traditionally associated with a conservative approach to risk, the industry is faced with the need to make bold decisions that will allow it not only to manage new risks, but also to take advantage of the opportunities presented by the digitalisation of processes. Thus, the insurance market needs to adapt quickly to technological change and changing consumer expectations.

The aim of this article is to analyse the areas and tools related to the digital transformation of the insurance sector. The research question posed is: how does digital transformation affect the development of the insurance market globally? The research presented in the article can contribute to the theoretical knowledge of digital transformation in the insurance sector. The research is based on data available in international reports published by Swiss Re, GlobalData, among others.

Keywords: insurance, digital transformation, insurance market.

1. Introduction and literature review

The digitalisation of the insurance industry accelerated significantly during the COVID-19 pandemic. In fact, prior to the pandemic, the insurance sector did not adopt digital technologies as quickly as the banking sector [13]. The pandemic has accelerated the need for digital transformation [16], highlighting the urgency for insurers to adopt digital technologies to serve customers more effectively and remain competitive.

When conducting their literature analysis, the authors considered publications found in the Scopus database that were published between 2017 and 2025. There is not much literature relating to digitisation in the insurance sector. In the Scopus database, only 15 publications from the studied period include words such as 'insurance' and 'digitisation' in the title. However, using the above words as keywords increases the number of publications to 25. Due to the scope of the study, only a sample of these publications were included.

The literature on the digital transformation of the insurance industry points mainly to new digital business models (InsurTechs, insurers as part of ecosystems, peer-to-peer, etc.) [18], comparison websites and direct online distribution. In addition, it points out the possibilities of the use of comparison and chat applications, robo-advisors and the direct access of customers to data in customer portals or, for that matter, the regulatory aspects

in force in the individual countries. The research also includes publications relating to digitisation processes in the insurance sector in the context of the Covid 19 pandemic [13]. Existing literature in this area analyses changes in the insurance industry using descriptive statistical and structural indicators and economic data, and points to the urgent need for digital transformation in various areas of the insurance market [3], [15]. In contrast, there is a noticeable lack of research on the impact of digitalisation on the activities of traditional insurance intermediaries such as agents and brokers [6], [11].

Digital transformation in the insurance sector is leading to the automation and standardisation of business processes, which increases productivity and efficiency, thereby reducing operational costs in the insurance sector [8]. In the case of insurance distribution, digitalisation is helping to increase sales productivity, reduce errors and combine face-to-face components with useful digital components. Ultimately, it gives the insurance intermediary more time to spend with the customer, which helps to build customer confidence [3], [4]. Hyttinen et al. [9] indicated that the most important digital enablers for businesses, including insurance, are business process automation, online services and data analytics. In light of the above, the following research question was posed: how does digital transformation affect the development of the insurance market globally? In turn, the aim of the article is to analyse the areas and tools related to the digital transformation of the insurance sector.

2. Research methods

In order to achieve the stated objective and validate the research question, a critical analysis of primary literature, an analysis of trends and solutions related to digital challenges in the insurance sector and an analysis of secondary data were conducted. The study is based on data available in international reports published by Swiss Re, GlobalData and others [8], [14], [15]. These research findings were selected due to the importance of the subject of these studies and their prevalence in the literature (for example, see references [14] and [16]). The study covered the period 2010-2023. The respondents were insurers and insurance market participants worldwide. However, the research material was verified in the period January-March 2025.

3. Results and research

To better quantify the impact of digitisation and its future potential for the insurance sector, Swiss Re [15] has developed the Insurance Digitisation Index. It is based on digitisation variables in individual countries. The leading European countries are Sweden, Finland and the Netherlands. These countries score particularly well in categories such as R&D spending and digital connectivity. Emerging markets are catching up with more digitally advanced economies. The benefits of digitisation can be realised in many areas of insurance market performance, both at the meso, macro and micro levels. This is made possible by the variety of digital solutions currently available. In addition, the authors of the study suggest that insurers in all countries could do more to benefit from digitalisation [15].

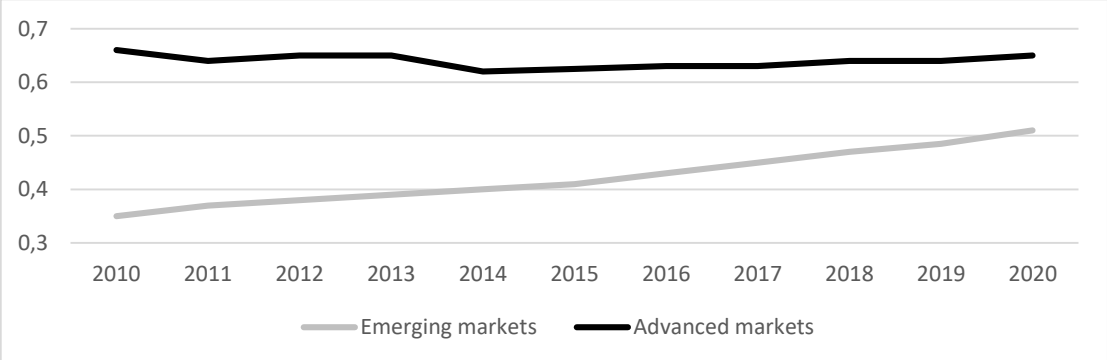

Fig. 1. Average Insurance Digitalisation Index scores over time, advanced vs emerging markets.
* for more information on the criteria used to create the Insurance Digitalisation Index, see [15], where the factors taken into account are listed: 1) access (fixed broadband subscriptions per 100 inhabitants; mobile

broadband subscriptions per 100 inhabitants); 2) use (share of Internet users who have purchased online in the last 12 months; Internet users as a share of individuals); 3) innovation (business R&D expenditure in information industries as a percentage of GDP); 4) market openness (Share of digitally-deliverable services in commercial services trade).
Source: Own study based on [14].

According to GlobalData's Cybersecurity in Insurance report, the size of the insurance sector's cybersecurity market will reach US$10.6 billion by 2025 (up from US$6 billion in 2019), meaning that spending in the insurance sector will grow at an average annual rate of more than 10% between 2020 and 2025. As the authors of the study point out, spending will also increase in the coming years, linked to the accelerating technological transformation of the sector [8]. Traditional insurers face significant challenges and opportunities. On the one hand, they have to deal with competition from digital players such as insurtech, the technology companies involved in insurance distribution. This engagement can take place in two ways: 1) by embedding insurance in their offerings, and 2) through insurance marketplaces. Insurance embedding involves the sale of insurance products provided by insurers. The insurance products offered are closely linked to non-insurance products or services offered by large technology companies. Insurance marketplace distribution involves the creation of a one-stop insurance shopping destination embedded in a large technology company's online platform. This form of distribution may involve partnering with multiple insurers to offer a wide range of products. While embedded insurance is directly linked to existing services provided by large technology companies, insurance marketplaces serve as an additional offering that expands the distribution offering of large technology companies [11].

In addressing the research question, it is worth highlighting that the digital transformation has resulted in global, non-insurance giants taking over the distribution of insurance. As shown in Table 1, large technology companies are active in both embedded insurance and market-based models. The ability to purchase insurance not only directly through insurance channels, but also on non-financial company websites, has a significant positive impact in that it is easier to purchase; however, it also has a significant negative impact in that insurance is a specific financial service and should not be sold without proper substance and form [7].

Meanwhile, the most significant opportunity arising from the digital transformation of the insurance market is the industry's use of artificial intelligence (AI), including generative AI, to improve risk assessment, provide more personalised products, streamline claims processing and improve insurance fraud detection.

Table 1. Big techs' embedded insurance and Big techs' insurance marketplace − cases.

Big Tech	Market	Insurance product	Distribution channel*
Apple	UK, EU, US	Product insurance (AppleCare+) for accidental damage and/or theft and loss of Apple devices (underwritten by AIG)	EM
Amazon	UK, EU	Product insurance (Amazon Protect) for goods purchased on Amazon	EM
Alibaba	China	− Return shipping, property and liability insurance for purchases on its shopping platform (Taobao/Tmall etc); − Return shipping insurance for purchases on its shipping and logistics platform (Cainiao); − Travel insurance offered through its trip booking platform (Fliggy); − Food safety insurance offered through its food delivery platform (Elema); − Account security insurance for Alipay account (Alipay).	IM
Amazon	UK	Amazon Insurance Store: Standardised Amazon home insurance from Ageas, Co-op, LV= and Policy Expert.	IM
Alibaba	China	Ant Insurance: All types, including health, non-life, life insurance and annuity, 400+ products from 50+ insurers.	IM
Mercado Libre	Mexico	Mercado Pago: Life insurance from Prudential only currently.	IM

*Embedding (EM); By insurance marketplace (IM).
Source: Own study based on [12].

Based on the research presented, the authors identified the most important possible digital trends for the development of the insurance market, such as the development of predictive analytics, artificial intelligence, IoT in the insurance sector, customised digital products, the growth of customer self-service, the development of low-code/no-code platforms, embedded insurance, the development and standardisation of APIs, hybrid cloud, the development of pay-per-use insurance, the development of insurance telematics, the remote working model and the change in working culture.

The use of digital solutions will depend on the activity of insurance market participants and their willingness and ability to adopt the digital trends identified.

4. Conclusion

As we and other studies have indicated [1], the benefits of digital transformation in the insurance sector are significant and multifaceted. Digital transformation encompasses more than just IT improvements; it also increases insurers' productivity, enables the creation of new products, enhances customer satisfaction, and leads to sustainable improvements in the sector.

Braun and Jia [2] also highlight the broader benefits of digitalisation in insurance. They point out that technologies such as advanced analytics, artificial intelligence (AI), the Internet of Things (IoT), cloud computing and blockchain can significantly improve efficiency in insurance. These efficiencies are mainly achieved through automation, while simultaneously revolutionising processes such as risk assessment and claims management.

The digital future of insurance therefore lies in systemic solutions that integrate sales and service processes, which will be a key factor in determining competitiveness in the market. Technological advances are also having a positive impact on the work of agents, claims adjusters, actuaries and so on.

The adoption of digital technologies remains a challenge for the global insurance market.

Insurers that embrace digital transformation will gain a competitive advantage by meeting growing customer demands with innovative products and services. This includes the use of artificial intelligence-based tools and blockchain-based solutions to ensure data security.

At a fundamental level, the insurance sector will need to innovate and develop its business models. Technology adoption should take into account the changing social and economic needs of customers. In addition, the digital, data-rich economy allows insurers to share and collaborate in the industry in new ways, creating new value propositions for customers. Digitalisation therefore opens the way for greater collaboration in the insurance market, creating synergies for its participants.

References

1. Ahmad, S., Karim, R., Sultana, N. and Lima, R.P.: InsurTech: Digital Transformation of the Insurance Industry", Kour, M., Taneja, S., Özen, E., Sood, K. and Grima, S. (Ed.) Financial Landscape Transformation: Technological Disruptions (Emerald Studies in Finance, Insurance, and Risk Management), Emerald Publishing Limited, Leeds, 287-299 (2025)
2. Braun, A., Jia, R.: InsurTech: Digital Technologies in Insurance. The Geneva Papers on Risk and Insurance - Issues and Practice. 50 (1), 1–7 (2025)
3. Dalla Pozza, I., Heitz-Spahn, S., Texier, L.: Generation Y multichannel behaviour for complex services: the need for human contact embodied through a distance relationship. Journal of Strategic Marketing. 25 (3), 226–239 (2017)
4. Dominique-Ferreira, S.: The key role played by intermediaries in the retail insurance distribution. International Journal of Retail & Amp; Distribution Management. 46

(11/12), 1170–1192 (2018)
5. Dutta H., Nagesh S., Talluri J., Bhaumik P.: A Solution to Blockchain Smart Contract Based Parametric Transport and Logistics Insurance. IEEE Transactions on Services Computing, 16 (5) 3155−3167 (2023)
6. Eckert, C., Neunsinger, C., Osterrieder, K.: Managing customer satisfaction: digital applications for insurance companies. The Geneva Papers on Risk and Insurance - Issues and Practice. 47 (3), 569–602 (2022)
7. Fras, M., et al.: Determinants of the Behaviour of Entities on the Insurance Market in the Light of Changes Introduced by the IDD Directive. Journal of Consumer Policy, 47.4 (2024)
8. GlobalData, Thematic Intelligence: Cybersecurity in Insurance, (2022), https://www.globaldata.com/data-insights/technology--media-and-telecom/insurers-will-spend-106-billion-on-cybersecurity/. Accessed: March 2025
9. Hyttinen, H., Kivijärvi, H.K., Öörni, A.: Searching Dimensions and Directions for Digital Innovations Within the Insurance Industry: A Knowledge-Centered Approach. International Journal of Innovation in the Digital Economy (IJIDE). 12 (2), 63–89 (2021)
10. Malifete L., Adekunle S., Aigbavboa C.: Exploring digitisation as a solution to the long-term insurance sector efficiency quagmire. Advances in Information Technology in Civil and Building Engineering - Proceedings of ICCCBE 2022. Ed. S. Skatulla, H. Beushausen. Springer Science and Business Media Deutschland GmbH. 357-374. (2023)
11. Marano, P., Li, S.: Regulating Robo-Advisors in Insurance Distribution: Lessons from the Insurance Distribution Directive and the AI Act. Risks. 11 (1), 12 (2023)
12. Ocampo, D.G., Taneja, J., Yong, J., Zhu, J.: From clicks to claims: emerging trends and risks of big techs' foray into insurance. FSI insights on policy implementation, 51 (2023).
13. Pauch, D. and Bera, A.: Digitization in the insurance sector – challenges in the face of the Covid-19 pandemic. Procedia Computer Science. 207, 1677–1684 (2022)
14. Swiss Re Institute, Zurich (2023): AI in insurance benefits and use cases of AI in insurance. Available from: https://www.swissre.com/risk-knowledge/advancing-societal-benefits-digitalisation/opportunities-ai-insurance.html. Accessed: January 2025
15. Swiss Re Institute, Zurich (2023): The economics of digitalisation in insurance: new risks, new solutions, new efficiencies. https://www.swissre.com/dam/jcr:dfcf4d4a-d6f6-424c-949f-794066470c8f/2023-09-sri-sigma-5-the-economics-of-digitalisation-2023.pdf. Accessed: January 2025
16. Volosovych, S., Zelenitsa, I., Kondratenko, D., Szymla, W., Mamchur, R.: Transformation of insurance technologies in the context of a pandemic. Insurance Markets and Companies. 12 (1), 1–13 (2021)
17. Weyd J.: Digitalisierung in der Gesetzlichen Krankenversicherung. Medizinrecht. 38, 183–192 (2020)
18. Widyani D.: The Impact Of Insurtech On The Insurance Business Model In Indonesia. International Journal of Financial System. 1 (2). (2023)