



## Implementation Of Artificial Intelligence at The Insurance Company

Deoh Sundari<sup>1</sup>, Susi Melinasari<sup>2</sup> , Ermi Suryani<sup>3</sup> , Hafid Fadilah<sup>4</sup>  
<sup>1,2,3,4</sup> Institut Agama Islam Sahid Bogor, Indonesia

Received : January 29, 2024

Revised : February 2, 2024

Accepted : March 9, 2024

Online : March 13, 2024

### Abstract

Insurance is very important in economic activity because in addition to providing protection against possible losses, it also encourages the growth of other economic activities. In this case, insurance provides protection against extraordinary hazards such as earthquakes, fires, strikes, and others. These dangers do not cause significant losses. The existence of this protection encourages economic growth in other fields because entrepreneurs do not hesitate to maintain their business and increase capital. The purpose of this study is to determine the implementation of Artificial Intelligence (AI) implementation in Insurance Companies. This type of research is descriptive qualitative research with the acquisition of secondary data directly obtained in journals and books. The results show that the insurance sector has experienced significant development over the past few decades. These developments are influenced by a variety of factors, including changes in technology such as the use of AI, regulation, and consumer needs.

**Keywords:** *Artificial Intelligence, Insurance Company, Sharia Insurance*

### INTRODUCTION

Our lives are sometimes full of various challenges that cannot be avoided. Insurance functions to transfer the risks we experience. As a consumer, customer, or insured party, or as a party who wants the risk to be transferred, we pay obligations in the form of premiums to the insurance company which acts as the guarantor or recipient of the risk transfer. The insured's obligations are regulated in the insurance agreement or contract as proof that the Insured is transferring the risk.

However, most people still think that insurance can cover everything, including risks and compensation that must be paid for everything that causes the loss. However, according to the agreement, when a risk occurs, the Insured will not experience financial loss; instead, the loss will be transferred to the insurance company as the Insurer. The insurance sector has experienced significant development over the last few decades. These developments are influenced by various factors, including changes in technology, regulations, and consumer needs.

Insurance companies have adopted new technologies such as data analytics, artificial intelligence (AI), and blockchain to improve their operational efficiency. This allows them to better manage risk, offer more customized products, and provide faster service to customers. With that, in this writing we will learn more about the implementation of Artificial Intelligence in insurance companies.

### LITERATURE REVIEW

#### Artificial Intelligence (AI)

The ability of a computer or computer system to imitate and execute tasks that normally require human intelligence is called artificial intelligence (AI) (Suhanda, 2015). Enabling computers to perform tasks that typically require human thinking, analysis, decision making, and problem solving is the primary goal of artificial intelligence (Manongga, 2022).

Artificial intelligence, or AI, has changed many aspects of life, such as the economic and

**Copyright Holder:**

© Sundari et al. (2024)

Corresponding author's email: susimelinasari@febi-inais.ac.id

**This Article is Licensed Under:**



financial sectors. Perry Warjiyo, Governor of Bank Indonesia, said that artificial intelligence has shown a lot of potential for Indonesia's economic and financial sectors. AI technology has three main advantages for the economy, namely:

1. **Production:** Current production factors, such as investments in manufacturing, finance, health, and transportation, can be multiplied by AI technology. This will increase future economic growth.
2. **Reform:** Many business processes and organizational work can be reformed quickly with the help of artificial intelligence technology. Including how people interact to make decision making easier.
3. **Efficiency:** AI can help provide goods and services efficiently. Provision can even reach prices that were previously impossible.

Artificial Intelligence (AI), with its powerful data processing and analysis capabilities, can help economists understand trends and patterns in economic data and forecast changes that will occur in the future. On the other hand, AI development is also influenced by economics; economics helps determine where and how AI will be used.

## **Insurance**

### *History of Sharia Insurance*

The history of sharia that developed in Indonesia cannot be separated from the concept of the development of sharia insurance which originated from the tribal culture of Saudi Arabia called Al-qilah from the time of the Prophet Muhammad SAW. The concept of sharia insurance itself is in Islamic law as stated in the Hadith of the Prophet Muhammad SAW which was narrated by Abu Hurairah ra. Since the time of the Prophet Muhammad SAW until now insurance has been introduced in the world. In 200 AH, many Muslim entrepreneurs pioneered the takaful system, namely a community that collected funds to be used to help other Muslim entrepreneurs who experienced losses, such as when their trading ships were robbed, and there were also those who experienced losses due to their ships hitting rocks and sinking. This term of loss is commonly known as "Shaking of Risk".

Muslim countries in 1979, an insurance company was founded in Sudan called Faisal Islamic Bank of Insurance Co. Ltd. The development of sharia insurance is also being followed by Malaysia. In 1984, Syarikat Takaful Pribadian Berhad was founded. Then introduced sharia insurance through the Malaysian Takaful company in 1985. On July 27 1993, the Indonesian Takaful Insurance Formation Team or *Tim Pembentukan Asuransi Takaful Indonesia (TEPATI)* was formed, whose members consisted of the *Ikatan Cenekawan Muslim Indonesia (ICMI)*, Bank Muamalat Indonesia, Bank Muamalat Indonesia and PT Asuransi Tugu Mandiri. The TEPATI team members traveled to the neighboring country of Malaysia for a comparative study to learn about the application of insurance using sharia principles, where this country has implemented sharia insurance since 1985.

Sharia insurance was introduced in Indonesia on February 24 1994, which was a milestone in the sharia-based insurance industry. PT Syarikat Takaful Indonesia became the first company to establish a sharia-based insurance company, namely PT Asuransi Takaful Keluarga on May 5 1994 with a sharia life insurance basis and PT Asuransi TakafulGeneral which operates in the general insurance sector, which was then inaugurated by the Minister of Finance at that time, Mar' ie Muhammad and as concrete evidence of concern and commitment to Indonesia's economic development. PT Syarikat Takaful Indonesia began operations on August 25 1994. PT Asuransi TakafulGeneral was inaugurated by the Minister of Research and Technology or Chairman

BPPT Prof. Dr. BJ Habibie as the founder of ICMI which began operating on June 2 1995. Said

to be a pioneer in the sharia insurance industry in Indonesia. Until now, the sharia insurance industry is still growing rapidly in Indonesia, as recorded in data from the MUI National Sharia Council (DSN) as of 2019, it reached 43 sharia insurance, 3 sharia reinsurance and 6 sharia insurance and reinsurance brokers. Until 2022, there will be 15 sharia insurance companies that are fully-fledged. Which consists of 8 sharia life insurance companies, 6 sharia general insurance companies and 1 sharia reinsurance company. Meanwhile, there are 45 companies in the form of sharia business units. Along the way, the development of sharia insurance in Indonesia has also experienced several problems or obstacles from several factors, such as awareness of the need for insurance in society, and low purchasing power of the community.

### *Understanding Insurance*

Insurance, also known as coverage, is "an agreement between two or more parties, with the insurer binding itself to the insured by accepting insurance premiums to provide compensation to the insured for loss, damage, or loss of expected profits, or legal liability to third parties that the insured may suffer, arising from an uncertain event, or for payments based on a belief made by a third party (Hafhidhudin, 2009).

Insurance is actually a joint contribution to ease someone's burden if the burden destroys them. The most general concept of insurance is an item made by a group of people who have the possibility of experiencing loss due to unpredictable situations, so that if the loss befalls one of them, the loss will be spread throughout the group. According to economics, insurance represents an economic arrangement that eliminates or reduces adverse consequences in the future due to various contingencies. This possibility must be not fixed for the individual affected, so that every event is an unexpected event. Insurance equally distributes all adverse consequences over a series (reihe) of cases that are threatened by the same danger but have not actually been threatened by that danger.

Insurance is very important in economic activities because apart from providing protection against possible losses, it also encourages the growth of other economic activities. In this case, insurance provides protection against extraordinary dangers such as earthquakes, fires, strikes, etc. These hazards do not cause significant harm. This protection encourages economic growth in other fields because entrepreneurs do not hesitate to maintain their businesses and increase capital.

## **RESEARCH METHOD**

The research method used in this research is descriptive analysis research using qualitative descriptive methods. This method is used because the focus of this research is analyzing the implementation of Artificial Intelligence in insurance companies. This research was carried out from Monday, 18 December 2023 to Thursday, 21 December 2023. The source of data obtained is secondary data which is directly obtained from journals, books and websites.

## **FINDINGS AND DISCUSSION**

### **Implementation of Artificial Intelligence in Insurance Companies**

The insurance industry uses AI to speed up risk assessment, *underwriting*, and processing policy claims. AI can analyze customer behavior, create different types of content, and spot fraud. AI can also automate benefits transactions, speed insurance policy claims processing, and reduce processing times from days to minutes. AI can study customer profiles and assess their needs using *deep learning* and neural networks. It is hoped that the use of AI technology will increase productivity, enable personalized service for customers, and help companies achieve their business goals.

In recent years, insurance companies have begun leveraging AI to spot risks, improve service and increase productivity. Here are some examples of how AI can be applied to insurance companies:

1. Underwriting and risk assessment: Artificial intelligence (AI) helps insurance companies evaluate risks and determine customer quality. PT AIA Financial (AIA Indonesia) is an example of an insurance company that uses artificial intelligence to evaluate risks and determine the quality of its customers.
2. Recruitment: PT AIA Financial, a life insurance company, has made the process of recruiting insurance agent candidates easier with an artificial intelligence-based test and interview system.
3. Solution: Global insurance company Tokio Marine uses AI solutions to handle vehicle damage, allowing vehicle owners to recover quickly.
4. Sustainability monitoring: Sequis, a Life insurance company, uses artificial intelligence to help its customers enjoy a better tomorrow. AI helps them create content like text, images, and sound according to the needs of their clients and potential clients.

While the insurance industry is increasingly relying on digital technology, insurtech products are also concentrating on enhancing cybersecurity measures to protect sensitive customer data. Insurtech has the ability to make insurance more customer-focused, effective and cost-effective. In addition, it brings new business models and competition in the insurance industry, encouraging insurance companies to grow. Some examples of Insurtech operations are as follows:

#### *Insurtech Aggregator/Marketplace*

Prospective customers can compare premium amounts and insurance services with Aggregators who directly offer insurance products and services. Insurtech aggregator companies only help provide a platform for insurance transactions and do not carry out insurance processes such as signing contracts, creating policies, or carrying out underwriting. Examples of aggregators include for example bukalapak.com, tokopedia.com, etc.

#### *Insurtech Intermediaries-Broker/Market*

It is an aggregator permitted by insurance brokers or agents. His job is to assist customers in choosing insurance products that suit their needs and assist them in the insurance transaction process carried out by customers. These intermediaries must enter into an agreement with the insurance company that will market their products regarding their authority and responsibilities as insurance product agents. One example of an intermediary is futureready.com, cekpremi.com, and www.premi.co.id.

#### *The Full Stuck Insurtech*

An insurance technology company that creates a *digital platform* that helps customers promote insurance products, carry out risk analysis, and carry out financial transactions for payment of claim premiums. An example of a *Full Stuck Insurtech model* is an insurance company website that can be accessed by customers to purchase insurance products and submit insurance claims online (Sari et al., 2023).

The insurance value chain has been heavily impacted by digitalization and will continue to have an impact as new technologies emerge and emerge. The main changes caused by digitalization include increased process efficiency, improved underwriting and product development, reshaping of customer interactions, distribution strategies, and new business models indicating that

digitalization has improved the business performance of insurance companies.

The advent of mobile and connected devices at the dawn of the digitalization wave increased the availability of customer data. Easy access to customer data has provided new opportunities for insurance companies to apply innovative technologies for their own benefit. Access to customer data forms the basis for various artificial intelligence applications and can be considered a prerequisite for the implementation of artificial intelligence (AI) by insurance companies.

**Table 1** AI Applications and Applications in the Insurance Industry

Application	Explanation	Implementation Status
Panel A: Regarding language or text conversion Voice/speech recognition and natural language generation.	Identification, understanding and interpretation of words and phrases in Generation's spoken language information in natural language from sets (verbal and written).	Various insurance companies have developed <i>chatbots</i> to respond written or verbal customer requests (e.g. Lemonade, Allianz, PNB MetLife, AXA, Aetna, Geico).
Panel B: Regarding recognition of patterns, trends and preferences. Detect patterns and anomalies in datasets (text and/or images).	Detect patterns and anomalies/outliers in unstructured data collections to draw conclusions.	Many insurance companies are increasingly implementing this pattern and anomaly detection for automatic detection of fraudulent claims (e.g. Oscar, Fabric, Aegon, Ping An, AXA, Generali, Allianz).
Panel C: Content-based information processing and making based on data Image and video analysis.	Interpretation and analysis of displayed objects or people.	<i>Lapetus Life</i> : Risk assessment and guarantee program complete an instant insurance quote by analyzing the applicant's uploaded image (combined with answering nine questions). Video and image analysis from finite satellite images providing early warning systems for natural disasters ( <i>Swiss Re</i> ) or providing index insurance ( <i>RIICE project</i> ).

### The Impact of Artificial Intelligence (AI) on the Insurance Value Chain

Artificial Intelligence has three main categories of change factors, including:

1. Changes in the way insurance companies interact with their customers. This includes changes in sales and customer service. Because there are no alternatives, customer service typically has to interact personally with an agent, broker, or bank to answer customer questions and obtain information about products. However, some products can even be purchased online *via chatbots without* being personally involved. When *chatbots* take over certain tasks, insurance companies can deploy sales and customer service agents more effectively.
2. The second change is the automation of business processes and decision making. Transaction-intensive industries like health insurance already use background processing, but a greater wave of automation will be brought about by the use of big data and artificial intelligence. For insurance companies, the biggest benefit of automation is the potential for cost savings. Additionally, human error can be eliminated, which makes repetitive administrative tasks

more accurate. Skilled employees will have more time to concentrate on truly profitable work. To increase customer satisfaction, business processes will be accelerated and claims will be resolved more quickly.

For example, in the underwriting process, insureds may have to answer fewer questions, increasing customer satisfaction and increasing customer retention because AI can process and analyze large amounts of data generated by telematic devices, social networks or other internet sources. Legal and ethical issues related to the use of *big data* and artificial intelligence in this context are major obstacles. This includes talking about the extent to which insurance companies can use all the data they create for their decision-making processes, how long data should be retained, and what steps insurance companies should take to protect their data from *cyber breaches*.

3. The third category covers major changes in the insurance industry. Artificial intelligence (AI) will create new insurance and risk markets and eliminate certain existing markets. Autonomous driving, which is changing the nature of responsibility in the automotive industry, is a clear example. If an accident occurs, who is responsible? Passengers, car manufacturers or artificial intelligence algorithm software developers? With these developments, there are doubts whether conventional car insurance as it exists today will continue to exist. Additionally, cyber threats generated by artificial intelligence create new market opportunities; several industry studies predict that by 2032, the largest non-life segment will consist of cyber risk insurance.

Considering the current insurance market, the application of artificial intelligence by insurance companies shows three main impacts in the context of risk insurability. Increased availability of detailed, risk-relevant information about policyholders through historical and *real-time data sets* will change traditional actuarial risk assessments and pricing models. Detailed analysis of text, images and videos from internal and external databases, as well as from connected devices (i.e. telematics devices and health devices), allows insurance companies to more accurately estimate and predict the probability of loss and amount of loss at an individual level.

This allows insurance companies to make a more accurate distinction between favorable and unfavorable risks. Additionally, it may also incentivize those with adverse risks to put more effort into avoiding losses or act in a different way. So, this can reduce moral risk, such as usage-based insurance products. Because risk-relevant behavior, such as prevention efforts, is transparent and directly measurable, this allows insurance companies to form small, homogeneous risk pools with accurate and flexible premium pricing schemes for each policyholder.

The result is that premiums for lower risks will be assigned to higher risks, and premiums for lower risks will be assigned to lower risks. However, this raises questions about how far bad risks can reach, potentially running afoul of insurance standards (Eling, 2021).

## CONCLUSIONS

The conclusions from the use of *Artificial Intelligence* (AI) in Insurance Companies are as follows:

1. Operational efficiency: AI can speed up risk assessment, claims resolution, and hiring.
2. Risk assessment accuracy: AI helps insurance companies assess information sources more easily and accurately, such as conducting risk assessments of prospective clients.
3. Customer Service: Insurance companies can offer faster and more continuous customer service through the use of AI, such as *chatbots* that can provide customer assistance and complaints without human intervention.

4. Data integration: AI enables insurance companies to understand and manage different risks by integrating data from various sources, such as customer personal data, policy information, claims data and financial transactions.

Improving the quality of insurance agents: PT AIA Financial, a life insurance company in Indonesia, uses AI in its recruitment system to speed up the recruitment process and maintain the quality of insurance agents.

#### **LIMITATION & FURTHER RESEARCH**

This research is limited to secondary data taken from journals, books and websites. For further research, more accurate data can be used to strengthen the research results. Based on the research results obtained, researchers provide suggestions to increase the use of Artificial Intelligence in insurance companies by also paying attention to the level of security. It should also be noted that the use of AI does not threaten the capabilities of human resources in particular.

#### **REFERENCES**

- Eling, M., Nuessle, D., & Staubli, J. (2022). The impact of artificial intelligence along the insurance value chain and on the insurability of risks. *The Geneva Papers on Risk and Insurance-Issues and Practice*, 47(2), 205-241. <https://link.springer.com/article/10.1057/s41288-020-00201-7>
- Hafhidhudin, D. (2009). *Solusi Berasuransi (Lebih Indah dengan Syariah)*. Bandung: Salmadani Pustaka Takaful.
- Manongga, D. (2022). Dampak Kecerdasan Buatan Bagi Pendidikan. *ADI Bisnis Digital Interdisiplin Jurnal*, 41-55.
- Sari, S. M.T.S., Mia Rasmiaty, S. S., & Dyah Prita Anggraini, S. M. (2023). *Asuransi Dan Literasi Keuangan*. (T. Media, Ed.) Surakarta, Solo: Tahta Media Gropu. Retrieved desember 20, 2023.
- Suhanda, S. (2015). Perbandingan Konsep Kerja Sistem Komputer Berbasis Kecerdasan Buatan dengan Kecerdasan Alamiah. *Infoman's*, 9(1), 74-86.