INSURANCE BUSINESS: MODERN OPPORTUNITIES AND RISKS

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Abstract. The aim of the work is to substantiate the impact of new technologies on the development of insurance, the need to change its business model, approaches to setting rates and attracting customers. The work is devoted to the comparison of pros and cons, the search and analysis of promising opportunities. Examples and opportunities for the use of artificial intelligence (AI) and machine learning (ML) in the insurance business are shown, and attention is paid to the disadvantages and risks of their use. Applications of AI in insurance: customer interaction, financial consulting and personalization, contract servicing and omnichannel, smart contracts, affective computing, loss adjustment, anti-fraud, medical insurance, vehicle and real estate insurance. Figuring out the advantages of AI: high decision-making speed, no human error, no emotion, 24/7 availability, reduced risk of human injury, reduced cyber threats. Disadvantages: high time and money costs, lack of creativity, lack of understanding of emotions, job cuts, lack of human ethics, scalability of hacker attacks. AI-based systems can subsequently take over many of the decisions that humans made.

Keywords: insurance, artificial intelligence, machine learning, business model, internet of things, human ethics.

Introduction. Insurance can be defined as a set of relations between its participants, the purpose of which is the formation of a monetary (insurance) fund and the possibility of using it to compensate for the damage caused. The main social mission of any insurance activity is to meet social needs and provide guaranteed protection from various, suddenly arising dangers. At the same time, the tasks of insurance, of course, are much broader than the mission described above. They also include the possibility of accumulating

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as well as investing free funds. However, the importance of insurance protection remains paramount. The insurance business plays a very important role in today's economy: it redistributes risks on a global scale, creates conditions for enhancing social protection of the population while reducing the financial burden on the state budget, and creates significant investment resources. The insurance business is a driving force of globalization through investment and reinsurance. By solving economic tasks of risk transfer and loss compensation, it contributes to the financial stability of economic entities, the mobilization of their savings, as well as the effective allocation of capital. In many countries, insurance companies have the ability to force the insured to take measures to reduce risk, abandon dangerous activities, replace obsolete equipment, and improve environmental safety. In addition, insurance is the largest owner of information: statistical information on the cyclicality of the economy, estimates of the consequences of natural and man-made accidents.

For several years now, authors from different countries have been drawing attention to the impact of new technologies on the development of the financial market, including the insurance business. Most of them investigate the positive impact of the use of AI and ML on the development of insurance, noting, however, that this inevitably leads to a change in the familiar, centuries-old business model. Some of the authors are inclined to analyze the usual business model aimed at harmonizing insurance and investment activities in insurance companies. However, some authors focus on the risks and problems of using new technologies.

The article discusses topics such as the prospects of using AI in insurance, the development of AI and investment activities in the Ukrainian insurance business, problems and discussions of the implementation of AI and ML in the insurance business.

1. Prospects for the use of AI and ML in insurance

Nowadays, insurance companies are among the leading investors. Therefore, maintaining their reliability and solvency, which is directly related to moderate placement of reserves (investment activity) in accordance with the requirements of the legislation, is a very important issue today. The situation in the country depends on many factors, and this causes fluctuations in the economic and investment environment. More than

a hundred banks have been closed and many companies have no funds to operate. These events did not spare the insurance market, which, due to its connection with banking and other spheres, turned out to be very sensitive to such changes.

The structure of investments of life insurance and risk insurance companies differs significantly (Table 1). It can be argued that while for risky insurers the liquidity of reserves is important, so they should be placed in the most reliable and conservative investment instruments, for life insurance companies, placing assets in securities is not so critical, because this instrument shows higher returns on long investment horizons.

Table 1

Investment criteria by type of insurance company

Criteria	Life insurance	Risk insurance
Duration	Long-term in connection with long-term insurance contracts	Short-term, as the contracts are concluded for a period of two weeks to a year
Profitability	It is necessary to get a stable income: income from investment activities is taken into account in determining the insurance premium	Lower return requirements compared to the liquidity of investments
Liquidity	Does not play a significant role: the need for cash is covered by coordinating the terms of payments with the terms of the investment	This is the most important principle of investing.
Inflation	It is necessary to forecast and take into account the future level of inflation	Galoping and hyperinflation are taken into account
Amount of investmens	Significant, constantly increasing through capitalization	The volume of investment is variable
Insurance payments	The payout period is often defined in the insurance contract	The period of payment is a random value; it is necessary to take into account the distribution of losses during the year from different types of insurance

One of the main features of investment activity of insurance companies is strict state regulation: establishment of rules for placement of insurance reserves [1]. The reasons for low activity of insurance companies as investors can be divided into internal and external. Internal: insufficient amounts of authorized capital, assets and insurance reserves. External: a limited choice of investment instruments, underdevelopment of the stock and real estate market [2], freezing of deposits in troubled banks, decline in the market value of financial instruments.

The insurance industry handles a lot of data, such as contracts, claims, invoices, financial reports, emails, and medical information. Unstructured (PDF files, text documents, images, tables and videos) and structured information – arrays of data suitable for further analysis – flow from departments to the head office. The most appropriate tool for dealing with large volumes of data is artificial intelligence. It measures customer engagement, insurance coverage, premium flows and claims, identifies patterns in documents, generates patterns and structures information.

AI potentially lives up to its promise of mimicking perception, reasoning, learning, and problem solving of the human mind. In this evolution, insurance will move from its current state of «detect and correct» to «predict and prevent,» transforming all aspects of the industry in the process [3]. AI will replace familiar research methods involving hundreds of questionnaire items, requiring time and resources to collect the right amount of data and verify it. The new opportunities that AI provides are beneficial to insurance companies and customers alike. Here it is important to provide the AI with the right data and ensure that the system is properly prepared. Human involvement is only required to control the AI [4]. The next generation of successful insurance workers must have a unique combination of technological skills, creativity and a willingness to engage in what is not a static process, but a combination of semi-automated and machine-supported tasks that are constantly evolving. The areas of application of AI in insurance can be roughly divided into those related to the quality of customer service and those that specialize in specific types of insurance (Figure 1).

1. Interaction with clients. In insurance, the frequency of interaction with customers is relatively low (customers usually contact the insurer only when they buy a product or report an insured event). Therefore, the ability to use

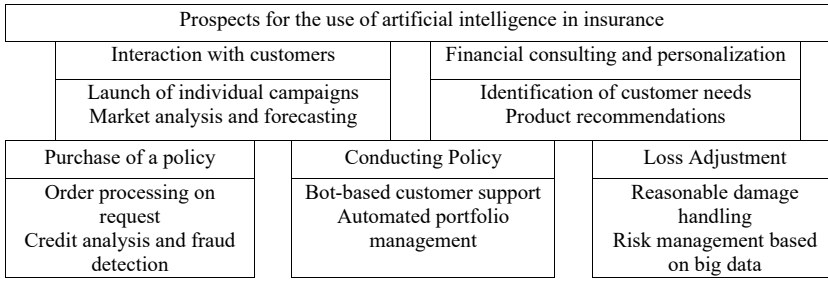

Figure 1. Prospects for the use of artificial intelligence in insurance

customer data to understand customer preferences is very important. AI can help by sorting and analyzing customer information and providing accurate customer profiles when developing successful customized marketing campaigns. In addition, AI helps make sense of enormous amounts of market data, including economic demand, competitor supply and market volatility, in order to price products according to current and projected demand. AI helps insurance companies during the scoring (a customer evaluation system based on numerical statistical methods) and onboarding (the process of customer adaptation to a new product: pop-up prompts and windows on the site recommend certain actions). With its help, insurance companies make an informed decision about accepting a customer for insurance and set a fair rate. Insurers use machine learning to estimate the likelihood of cheating the customer at the time of purchase and subsequent monetary losses. Arguments «against» the policyholder can be, for example, provided inaccurate data, bad credit history or information about initiated lawsuits [5].

2. Financial advice and personalization. AI technologies also help recommend new products to potential customers. In particular, when customers' individual profiles and goals are automatically mapped to existing products, the process of advising on products becomes faster and more efficient. Given that insurance products are inherently complex, AI can provide customized illustrations of how products work and help customers identify their insurance needs, especially when it comes to multi-purpose products such as comprehensive life insurance.

AI-powered insurance is accessing customer data through wearable devices, location sensors, onsite sensors and geographic information

systems. Using AI machine learning techniques, insurers can perform more accurate analytics in real time. Traditionally, insurers have used generic models when working with customers to shape their packages and prepare rates because of a lack of data and complex analysis. Now an insurance company can use AI to collect individual data in real time. Each individual case will serve as the basis for the contract, contributing to its flexibility and accuracy of rates. Insurance products designed and priced according to a customer's individual needs and lifestyle will allow customers to pay for the coverage they need. The client practically pays for his actions, forming his own statistics, he can make decisions about how his actions affect insurance coverage, insurance coverage and pricing [6]. There are examples of such decisions in Ukraine. Inshurtech company Easy Peasy has launched in the Ukrainian market an online service for purchase of car insurance on the principle of «pay as you go» with payment per kilometer [7]. The insurance policy must be processed and analyzed at the time of purchase and before being submitted for underwriting. This process can take hours or even days if done manually. AI allows you to automate order processing by taking on different types of data and fact checking, such as fraud detection and credit analysis. As a result, the customer gets a better experience with the company by speeding up the buying process.

3. Contract Maintenance and Omnichannel. Omnichannel involves developing a self-service portal where customers and insurers can find answers to questions, conduct business (transactions, orders, filing claims, paying bills), check status, send support requests, and download resources. This is an effective approach to improving customer service [8]. During the life of an insurance policy, chatbots can provide customer support around the clock. Moreover, policy adjustments, such as portfolio diversification and risk profiling, can be done automatically by AI-based algorithms.

4. Smart contracts. Blockchain-based insurance companies are creating better risk-sharing models by giving people more personalized and affordable insurance options. For example, Nexus Mutual aims to replace existing insurance models with mutual markets based on smart contracts. By allowing people to share risks among large populations, they aim to lower the cost of insurance and replace the need for large insurance companies [8].

5. Affective Computation. Affective computing, also known as emotional AI, can be used to better understand customers and respond to

their mental state. Here's how insurance companies can use this technology [9]: intelligent call routing: angry customers can be directed to more experienced carriers to satisfy those customers; fraud detection: insurance companies can use voice analytics to understand whether a customer is lying when filing a claim.

6. Loss Adjustment. Given the large volume and relevance of data on economic, demographic, natural, and market conditions, there is great potential for more accurate risk determination. AI supports the interpretation of risk data so that actuaries have the most up-to-date models for effective risk management. Claims processing involves several tasks: review, investigation, correction, transfer or rejection. The claims process is fast and unencumbered. Chatbots are used to register a claim, verify the details, verify that it is not fraudulent, and send the claim to the bank for further processing. Chatbots can use geographic and social data from customers to personalize their interactions with the company. Using computer vision, the chatbot can examine evidence of the accident and estimate the amount of damage – no more need to send an insurance inspector to take photos and make a report [6].

7. Fraud protection. Various types of fraud can be committed by both customers and insurance company employees. Sometimes insurance agents keep money for personal use instead of sending it to the insurance company, or sell a policy without a license to collect premiums. Analyzing security sensor data can open up new opportunities for business insurance. To mitigate the damage from a security breach, a company can take advantage of cyber threat insurance, which covers a wide range of losses from cyber risks that can unexpectedly arise from cyber attacks. Cyber insurance uses predictive analytics to determine the risk of attacks such as hacking and malware use [6].

8. Medical insurance and health insurance. AI affects the cost-effectiveness of health insurance. Insurance companies are equipping their customers with new platforms that match the user with the most appropriate coverage aimed at promoting a healthy lifestyle. AI helps separate real medical claims from fraudulent ones. Automated matching of doctor's appointments and diagnoses in voluntary health insurance can save insurers huge amounts of money on unnecessary tests. With additional GPS data, wearable devices can track and report on a claimant's compliance with a

disabled person's rehabilitation protocol. Stricter compliance will reduce the time it takes to get back to work. Telemedicine applications have become an almost integral part of voluntary health insurance, which in real time, using fitness gadgets and data that the client enters himself, analyze his health condition and then inform the client if something is wrong with his pulse, blood pressure or other indicators, suggest changing the daily routine, adjusting physical activity, making appointments with specialists. All of this allows for individualized rates for regular customers. Using a combination of images and video, multiple checkpoints can be obtained for each user. The software can detect «crow's feet» around the eyes, estimate the body mass index, and determine how quickly a person is biologically aging [6].

9. Vehicle insurance. By analyzing vehicle telematics data with machine-learning algorithms, insurance companies use AI to create personalized risk profiles for drivers. Some insurers use the collected data to give drivers discounts for safe driving and penalties for dangerous behavior, such as speeding or sudden braking. In the event of an accident, the same data helps assess damage in real time using a smartphone camera, determine the severity of damage, estimate repair costs and analyze the impact of the accident on the driver's future insurance premiums. ML mechanisms ensure the accuracy of this analysis because they compare the obtained photo with a photo database containing thousands of images of car accidents. API portals can combine publicly available data with the insurer's own data to create better insurance products for customers [6]. The sequence of actions that is triggered when an insured event occurs is very important. For example, if an airbag sensor goes off in an insured car, the insurance company's control panel automatically calls an ambulance, sends an emergency commissioner to help the customer, and support specialists call to reassure and help. If necessary, a tow truck will be called to take the car to where the customer can pick it up. This is only possible when using complex algorithms that take into account hundreds of parameters: from the remoteness of the customer himself to the workload of the dealership where the car will be sent for repair [10]. Many companies implement analysis of losses that look fraudulent when there are subtle links between participants in accidents, vehicles or insurance contracts. The involvement of AI can minimize or eliminate illegal claims, resulting in lower rates for bona fide policyholders. AI enables insurance companies to cut costs and depend less on investigators.

One of the tasks of AI is to identify subtle relationships between loss ratios and hidden factors. AI is used to build tariff models and adjust the cost of the policy in relation to a particular client. For example, in auto insurance, AI applies coefficients that take into account a driver's age and experience, accident-free past, place of residence, time of year, and road situation. It also takes into account the state of the market, the level of wages in the region, and forecasts of customer churn. Based on the instant analysis of both linear and nonlinear relationships, a real personalization of the tariff takes place (Samiev, 2021 [8]).

10. Real Estate Insurance. AI can provide home insurance options in 15 minutes to 60 seconds for each individual home, with smart home controls and emergency assistance if needed. The Internet of Things (IoT) and AI take into account plants, terrain, and even how easily firefighters can arrive if needed. New models assess disaster risks, property conditions, and past records of customer claims. IoT moisture sensors can monitor the condition of a home's plumbing. The system not only alerts the homeowner, but can also shut off the flow of water in burst pipes (Zfort, 2020 [9]).

2. Development of AI and investment activity in Ukrainian insurance business

The rapid spread of AI in insurance in Ukraine is hindered by the small volume of the insurance market, which entails a lack of data required for the correct development of machine learning systems. In addition, the large-scale implementation of such systems requires significant investment in development and support, as well as time to train AI on the basis of real data and the creation of the necessary infrastructure. Customers of insurance companies must also be prepared for new technologies and overcome their fear of personal data leakage [10]. The colossal volume of regulations combined with the sensitive information of thousands of users makes the insurance industry cautious when introducing new technologies [11]. Opportunities for insurers to directly access customer data via IoT [12]: wearable or personal devices; sensors on objects such as personal and commercial vehicles and containers; location sensors in factories, warehouses, offices and homes: smart thermostats, alarms and cameras; geographic information, systems and satellites providing geophysical, topographic, climatological and hydrological data.

Artificial intelligence can help banks and insurance companies provide services efficiently and effectively, facilitating the following activities.

Many insurance companies have already implemented [5]:

– mobile application for the settlement of claims on property insurance of individuals (filing an application, conducting a remote inspection, checking the validity, confirming the client's application with a digital signature, payment of compensation);

– settlement of insurance cases via WhatsApp (you can report an insured event on CASCO or property insurance of individuals, send photos of documents, get advice, find out the terms of the decision and get a referral for repair);

– digital assistant (the role of an online concierge with automated customer calls: contacts customers and informs them about the need for regular payments; the robot is trained in speech recognition, which allows it to understand the customer and advise them on the product);

– project to automate business processes for selling insurance products and interacting with clients based on a microservice architecture;

– service product for bank card holders;

– usability of insurance products in a mobile bank;

– individual online scoring for mortgage life insurance (insurance against loss of collateral and personal insurance of the borrower with the ability to make/purchase a policy on the website);

– automation of VHI (voluntary health insurance) business processes based on Diasoft Insurance Medical (optimization of application processing, ensuring scalability of VHI business, creation of a single information environment for VHI contracts).

Currently, the business model focused on increasing gross premiums and increasing market share is outdated [13]. The current redistribution of the main threats and risks for insurance business requires the search for sources of value not only in the field of insurance risks, but also in the field of investment activity. The investment policy of insurance companies includes several directions (Figure 2).

Conditions of formation of investment resources of insurance company, the main provisions of its investment policy determine a certain order of formation of investment portfolio (Figure 3).

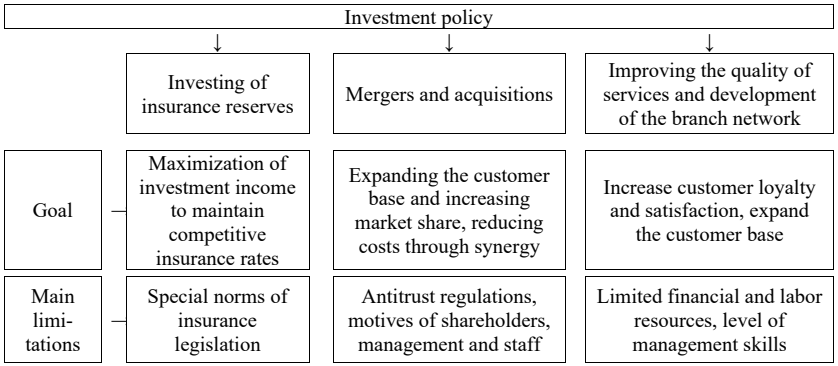

Figure 2. Directions of the investment policy of the insurer

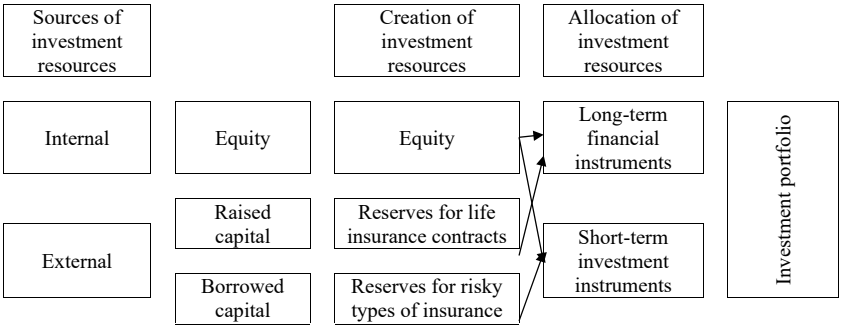

Figure 3. The order of formation of the investment portfolio of the insurer

The investment strategy can be considered as the main regulator of the insurer's investment portfolio management, as a system of long-term goals and choice of rational ways to ensure the predicted investment results. The structure of insurance company investment portfolio management is presented on Figure 4. The portfolio is evaluated by profitability, risk and liquidity criteria. Consider riskiness of possible investments, since it is this criterion that is used to select projects (Table 2).

The Ministry of Finance, in accordance with the Resolution of the Cabinet of Ministers of Ukraine from January 31, 2001 № 80 [14], and also carries out depository activities for them. However, such investments are also not risk-

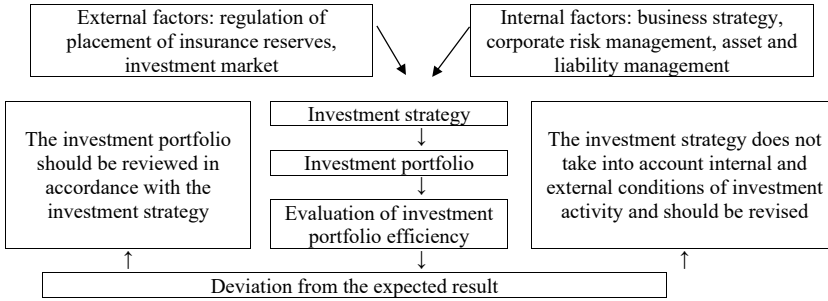

Figure 4. Structure of management of the investment portfolio of an insurance company

free. Thus, the riskiness of investing in government securities was shown by the sad example of Greece and Ireland, whose bonds fell amid the debt crisis.

Also, at the moment the stock market of corporate issuers is characterized by low liquidity, and, with further changes in the political situation, we can expect a significant increase in its volatility. It should be noted that in order to restore its stable growth, not only the inflow of new investments into Ukraine, but also systemic changes in the corporate standards of Ukrainian issuers are needed.

To improve the financial management of investment activities, insurers could be offered to create a structural unit engaged exclusively in investment activities. However, this would entail certain costs: salaries of specialists (including actuaries) and, possibly, purchase of software robots (RPA) to analyze the stock market, derivatives market, search for reliable and profitable assets for investment. The new unit may also perform investment controlling and other functions (Figures 5, 6).

Table 2

The level of risk of the objects of investment

Objects	Risk level	Yield
Government bonds	Minimum	Risk-free rate
Deposits in banks	Low	Moderate
Municipal bonds	Low	Moderate
Corporate bonds	Higher	Higher
Stocks (Shares)	Highest	Highest

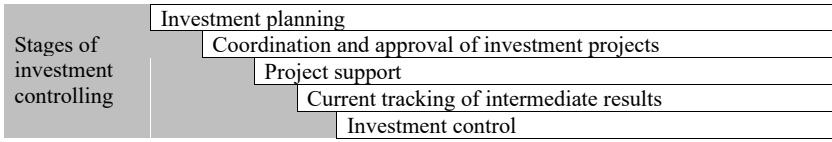

Figure 5. Stages of investment controlling

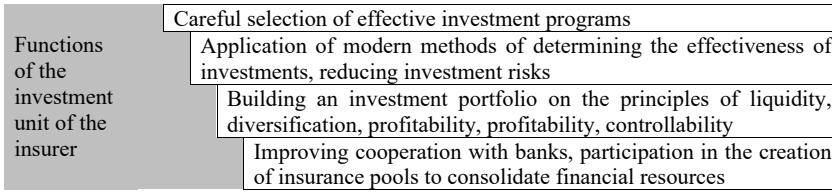

Figure 6. Functions of the investment department of the insurer

Thus, insurance is an important factor in the development of investment activity. Analyzing the influence that investment activity has on the financial results of insurers, many scientists and practitioners have tried to determine its role in the insurance business. The main source of investment resources of the insurer is insurance payments of insured persons. At the same time replenishment of own funds depends on earned premiums, and formation of insurance reserves – on obligations under existing insurance contracts.

3. Challenges and discussions of implementing AI and ML in the insurance business

Recently, another type of prospective customer has emerged for insurers – venture-backed global fintech companies, which raised a record $30.79 billion in the second quarter of 2021, a 30% increase over the first quarter [15]. But many of these are startups that combine financial, human, and digital risks and require some regulatory change. Financial technology in payments, digital banking, insurance business and business processes tends to be viewed more favorably by insurers, while securing coverage for cryptocurrencies, unbanked lenders, robo-advisors and online brokers can be more difficult.

Insurers usually feel more comfortable when cryptocurrency tokens have been traded in the industry for some time, when they understand the structure and when they know the states and countries where cryptocurrency companies operate.

Ensuring adequate and affordable E&O coverage is the most challenging task for fintech companies (errors and omissions (E&O) insurance is a type of professional liability insurance that protects companies, their employees and other professionals from claims of inadequate performance or negligent acts).

Many existing insurance programs were not written with new business models in mind, so the way Fintech products and services are defined may not be adequate or fully reflective of what they do.

In addition to the above general and insurance-specific barriers to early and widespread adoption of AI, there are also ethical issues. In December 2015, the EU Parliament and the European Council agreed on the General Data Protection Regulation (GDPR) [16]. It applies to firms that process the personal data of people living in the EU, whether their services are free or for a fee, whether the firm is based in the EU or not. This was an update of the Data Protection Directive, which came into force in 1995. Under the GDPR, fines can be as high as 20 million euros or 4 percent of global annual turnover (whichever is greater) if a firm's actions result in a loss of information or a data breach. It went into effect in member countries in May 2018. The GDPR requires that personal information be deleted without undue delay when the data is no longer needed because of the purpose for which it was collected. The use of the data must also be restricted if the quality of the data is disputed by the data subject. The firm must keep accurate records of the data subject's consent to the use of their data for primary and any secondary purposes.

Ethics Guidelines for Trustworthy AI: High-Level Expert Group on Artificial Intelligence (AI HLEG) [16] is a set of 7 key requirements that AI systems must meet to be considered trustworthy:

– human participation and oversight: AI systems should empower people to make informed decisions and protect their basic rights; at the same time, adequate oversight mechanisms need to be provided, which can be achieved through human-in-the-chain and human-in-team approaches;

– technical reliability and safety: AI systems must be reliable and safe, have a contingency plan in case something goes wrong, and be accurate, reliable and repeatable; this is the only way to ensure that unintentional harm is minimized and prevented;

– confidentiality and data management: in addition to ensuring full respect for confidentiality and data protection, adequate data management mechanisms must also be in place, taking into account data quality and integrity and ensuring lawful access to data;

– transparency: the business models of data, systems, and AI must be transparent; traceability mechanisms can help with this. In addition, AI systems and their solutions must be explained in a way that stakeholders can understand; people must know that they are interacting with an AI system and must be informed about the system's capabilities and limitations;

– diversity, non-discrimination, and fairness: bias should be avoided, as it can have many negative consequences, from marginalizing vulnerable groups to exacerbating prejudice and discrimination. By promoting diversity, AI systems should be accessible to all and involve relevant stakeholders throughout the lifecycle;

– social and ecological well-being: artificial intelligence systems must benefit all people, including future generations, so they must be sustainable and environmentally friendly. Moreover, they must take into account the environment, including other living beings;

– accountability: mechanisms must be in place to ensure that AI systems and their outputs are responsible and accountable. Auditing capabilities to evaluate algorithms, data, and design processes are key to this, especially in mission-critical applications. In addition, adequate and affordable cost recovery is needed.

AI problem areas: ethics, responsibility, accountability, security, software accessibility (Table 3). If you look closely, the disadvantages of artificial intelligence are that AI machines are not human [17].

Table 3

Pros and cons of artificial intelligence

Pros	Cons
High speed of decision making	Large investment of time and money
No human error	Lack of creativity
Lack of emotion	Misunderstanding of emotions
24/7 availability	Job cuts
Reducing the risk of injury to people	Lack of human ethics
Reducing cyber threats	Scaling hacker attacks

In terms of liability, AI-based systems can then make many decisions that were previously the prerogative of humans, but by law AI systems cannot be held liable for those decisions. Generally, the manufacturer of AI systems or the developer of their software is responsible for defects that harm users. However, AI decisions that are not directly related to design or production, but are made by the system by virtue of its interpretation of reality, will not have a clear culprit under current law. Developers, manufacturers or sellers of AI products would have limited civil liability. And insurers will play a key role in minimizing, managing and transferring the new emerging risks associated with AI technologies. To protect both consumers and businesses, traditional coverages will need to be adjusted. Insurance will need to better neutralize certain risks for companies (cyberattacks, business interruption, product recall, reputational damage).

Insurance companies use machine learning:

– for cross-sales of policies of compulsory civil liability insurance of owners of vehicles;

– to determine demand for personal property insurance policies, where the model screens out most customers who are not interested in buying, increasing conversion to sales;

– to assess the client's risk (fraud);

– to assess the likelihood of renewal of the insurance policy, the likelihood of obtaining subrogation for the accident, which the client was involved in (which helps to keep prices for insurance services below the market without reducing the level of profitability);

– to reduce the loss ratio of insurance products, to increase the penetration of insurance products, to reduce the duration of loss adjustment (automation), to reduce the amount of manual labor of employees;

– for the analysis of medical services;

– to work with personnel (control of the work of contact center operators);

– to analyze a large amount of data in a short period of time;

– to supplement classic insurance products with new options (periodic health diagnostics of the insured);

– to form a targeted offer to clients (health maintenance services, real estate, car and other client's assets insurance);

– for the settlement of losses (processing data from medical institutions, controlling the timing and amount of insurance payments);

– to set tariffs taking into account individual risks of the client;

– for the introduction of remote examinations using cell phones (training to determine the extent of damage).

To assess the quality of the model, in addition to standard metrics of data science (ROC-AUC (error curve), Precision and Recall, F-measure (test accuracy)), indicators reflecting the impact on business are used: changes in the frequency and size of insurance payments, collection volume, conversion of leads into sales, etc. [18]. Generalized linear models are the main tools of machine learning – they are easy to interpret and apply. More complex models are used (gradient boosting, random forest, neural networks, NLP, etc.), but the success of a particular model is influenced not so much by its complexity as by the amount of data.

Thus, AI will help insurers analyze vast amounts of data quickly and efficiently, and the power of its analytics will determine whether it can offer the best insurance terms for the customer and for the company. Artificial intelligence can also be indispensable in claims management, where quick payouts can be crucial to customer satisfaction. In addition, technology can help identify fraudulent schemes and reduce the number of improper payments. The impact of AI on the insurance business is enormous. A policy will be issued in a couple of clicks by filling in just a few parameters. Policy changes will be made in half a minute, and the process of claim application and settlement will become much simpler and faster.

The main challenges posed by the increasing use of artificial intelligence in society and industry, including the insurance industry: Artificial intelligence-based technology will increase the vulnerability of companies to cyberattacks and technical failures, leading to greater losses and disruptions; companies will face problems shifting responsibility from humans to machines and their manufacturers. A new concept of risk management is needed that takes into account the growth of losses from the use of artificial intelligence. Risk management is a key tool that can maximize the net benefit of artificial intelligence. In doing so, software availability, security, accounting, accountability and ethical issues become critical aspects for identifying threats.

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