

Artificial Intelligence In Insurance Sector

Saloni Kumari

Article Info	Abstract
Article History Received: April 15, 2021 Accepted: November 19, 2021	<i>"The rise of powerful Artificial Intelligence will be either the best or worst thing ever to happen to humanity. We do not know which."</i> – Stephen Hawking <i>Pursuit of knowledge has been the guiding principles throughout the human history. With the evolving time, society has undergone significant changes within their dynamics and structure resulting into technological advancement. Artificial intelligence one such evolving field of computer science which is also expected to bring out revolution into the various sectors of the economy. The insurance sector is picking up the pace slowly but it is predictable that very rapidly it is going to leverage technologies. The technology use by the Insurance technology, popularly known as 'InsurTech' has been designed in a way to enhance the productivity and growth and increase the reach of services in every section of the society. The paper studies the impact and growth of Artificial intelligence in the insurance sector and draws an analysis on the further risks and uncertainties involved.</i>
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Introduction

The term Artificial Intelligence (AI) was first coined in 1956 by the scientist John McCarthy as *"the science and engineering of making intelligent machines."* Artificial Intelligence (AI) refers to embedding the ability to think and act like human beings into the computer software. It studies intelligent entities not just from engineering perspective but also from philosophical and psychological perspective. The technique of simulation of human intelligence into the machines which includes processes such as learning, reasoning and self-correction. The term Artificial Intelligence is a very wide term and acts as an umbrella term covering from process automation, to robotics and to machine learning.

The insurance sector is picking up the pace slowly but it is predictable that very rapidly it is going to leverage technologies. It primarily facilitates the company in its functioning and benefits its customers. The global InsurTech market is expected to grow steadily over the next four years with a Compound annual growth rate (CAGR) of more than 10% by 2020.

In general, there are 3 major challenges which the insurance companies face while carrying out their functions, they are:

- Reach out to prospective customers at right time.
- Understanding customer's needs and providing right product;
- Provide fastest claim support and rejection of fraudulent claims.

In order to discharge their functions insurance companies catalyze an army of agents, brokers, marketing teams, support personnel, claim investigators and technology systems. They are bifurcated into departments which work together as a team but there are major prolixity and friction which lead to the shift from traditional to modern advancement of AI in the insurance eco-system.

KEY TECHNOLOGIES OF ARTIFICIAL INTELLIGENCE

ROBOTICS- Claim settlement and support lies at the heart of the insurance sector. But, the process of claims involves highly manual job with a heavy amount of paper work. It is not only time consuming but also costly. Robotics Process Automation (RPA) is an area of AI which combines all the systems and processes and simplifies the complexity of data. RPA is an alliance of AI tools which inhibit in itself machine learning, virtual agents, computer vision etc. Robotics possess the potential of evolving as the future of insurance sector in India as well as all over the world. It facilitates lesser human intervention, higher efficiency and lower cost including processes of image classification for claims, text analysis, replying to the queries etc. These are necessary for taking informed decision and innovation in the field in accordance with the needs of the society. One of the major forms of RPA the most experimented and used in the current scenario are **'Chatbot.'** Chatbot acts on the basis of the quality of data fed into the system. Further, there are other forms of RPA like, *Automation of claim settlement via well-defined rules inbuilt into the system, Extraction of data from all channels and the claims can*

be processed from any channel. The working of the robotics are dependent upon the quality of data and the shared truth which helps in popping up the accurate data needed at the time of claims or queries.

MACHINE LEARNING-Machine learning is a process of detecting patterns into the data available in an automated manner by the use of algorithms. Machine learning process has the potential to establish predictive and descriptive data models after evaluation of all the data already available into the system and it also tends to explore new data sources like, Internet of things (IoT), telematics, social learning etc. These data empower the machine to build a deeper understanding and form an informed decision. Adoption of these innovative machines would equip the insurer to respond to the market challenges in an efficient manner. Insurer would be capable enough to develop a real-time knowledge about their customer's behavioral and socio-economic activities, recognize the existing development taking place in the market place and cope up with the upcoming challenges. Also, it helps the insurer to provide a *tailored product offering* which would improve customer satisfaction with a better experience. Machine learning is capable for *Claim management and Fraud detection* by the set of rules fed into the system also, it could minimize the risk of fraudulent activities by identifying the fraud in the initial stage itself. As machine learning utilizes technology for the interpretation of data by the internal as well as external sources, it provides a better understanding of risk profiles of the customers simplifying the hideous process of underwriting.

BLOCKCHAIN-Blockchain, or distributed ledger technology updates and encrypts information continuously to provide a verified trail of all transactions. As it is stored in multiple locations with no single authority, every change is published as an addendum while still maintaining the original data created, making the ledger a highly credible source of information. In the insurance industry, blockchain can help all players, from agents and brokers to distributors and underwriters to use the same source of data to underwrite risks and make decisions. The single ledger enables companies to eliminate inconsistencies and errors boosting the overall efficiency and transparency across the entire value chain. This can indirectly reduce data management costs significantly. It will also compel all entities involved to adhere to the highest standards while they update the records. This will ensure that the resulting data is highly accurate and reliable. Each entity will also be assured of the safety of its proprietary information with the use of private and public keys along with cryptography.

DRONES-Drones are very advantageous in *claims management*. In situations of crisis like, fires or floods when it becomes difficult for a claims adjuster to gain immediate access, a drone can be flown over the property to determine the extent of the damage. This provides the customer speedy services resulting into the enhanced customer services. Risk assessments can also be very well be done by drones, especially where the elements of a property are inaccessible, for instance the roof, or to provide underwriters with a view of the area so they can assess a range of risk factors. Similarly, drones can be deployed for engineering inspections. Flying a drone around a building removes the need for scaffolding and ladders, which improves safety and can also increase the scope of the inspection.

INDIAN SCENARIO AND INITIATIVES BY INSURANCE COMPANIES

The first ever email chat bot was launched by the **HDFC Life** named '**SPOK**' in 2017. It is involved in responding to user queries faster and more efficiently and consistently. It also helps in generating deeper insight on customer needs by identifying patterns in customer interactions. It further facilitates in anticipating and addressing all customer issues and needs. It will improve customer's experience by providing the support staff to focus on customer satisfaction and delight. Further, HDFC Life Insurance Company launched '**Neo**' which is a servicing bot for Twitter that uses AI for customer services. Insurer would deploy the bot in answering policy addressing the queries on social media. Other life insurers like **PNB Metlife** have launched **virtual reality humano, 'Kushi'** leveraging the power of AI, chat bots, natural language processing. Virtual reality (VR) is being used in the insurance industry to benefit the customers directly through superior experience and availability of experts. It aims to provide a differentiated, immersive and a personalized experience to the customer through the VR headset available in branch offices. When customers put on the VR headset they find themselves in a 3D simulated virtual room, face to face with an avatar "Khushi", a life insurance expert. The platform displays policy related information and uniquely engage the customers through visual assist elements like animations. **HDFC ERGO** Launched its AI enabled Chatbot '**DIA**' on Amazon's cloud-based voice service, Alexa. The presence of 'DIA' on Alexa, aims to offer a 24/7 customer assistance with instant solutions to customer queries, thereby creating an enhanced customer service experience.

Apollo Munich Health Insurance launched '**Travel Ninja**', a chatbot to sell travel insurance policies. It suggests customers the right insurance plan and the sum insured, creates a policy proposal and gives them a payment link. **ICICI Lombard** is using a program called '**MyRA**' to underwrite two-wheeler insurance as well

as fire and burglary insurance for SMEs and offer them quotations in real time. It completes transactions including payment receipt without human intervention. MyRA also helps customers to either buy or renew two wheeler insurance online.

Bajaj Allianz General Insurance has launched a digital products leveraging Blockchain technology and artificial intelligence (AI) with an aim to transform and simplify the customer experience. These new products helps to go paperless in terms of the claim settlement process and reduce customer service turnaround time drastically. The three new products launched are '**Travel Ezee**' a travel insurance claim app, '**Boing**' a intelligence chatbot platform for 24/7 customer service support and '**Motor On The Spot**' (Motor OTS) a mobile based self-survey application for motor insurance claim settlements on the spot.

INTERNATIONAL SCENARIO

US insurer **Lemonade**, developed a Chatbot '**AI Jim**', which was able to settle a claim in just three seconds. This included cross-referencing it with the policy details, running 18 anti-fraud algorithms and transferring the settlement into the policyholder's bank account. Lemonade is also addressing consumer-to-carrier transparency by applying a flat, upfront fee to premium income rather than profiting from unclaimed premiums. Adjusters use **Tractable's** deep learning systems to simplify the process after a car accident. Instead of manually scanning pictures, they use machine-trained estimates for repair costs, enabling agents to accelerate a claim into repair, salvage, or appraisal. Further an US based company **WeGoLook** is an 'Uber of inspections' that can dispatch 30,000 'lookers' to collect real-time data, photos or video on behalf of insurers for automotive and property inspections or insurance claims. **GEICO** in the US, meanwhile, has launched a virtual assistant for its mobile app. Called '**Kate**', it understands natural language and can answer basic questions like, "What is the current balance on my auto insurance policy?" or "When is my next payment due?"

A Europe based insurance company **Swiss Re** is partnering with the government of Heilongjiang Province and the Sunlight Agriculture Mutual Insurance Company of China. They have tied up together to offer commercial insurance products that protect farmers against financial risks from natural catastrophes. This anti-poverty insurance solution combines a weather index product with a satellite-based flood parametric product.

Japan based **Fukoku Mutual Life Insurance** is using the '**IBM Watson Explorer**' AI platform on the health insurance sector by classifying the diseases, injuries and surgical procedures as well as to calculate claims pay-outs. The said technology is designed to be able to read and verify medical certificated of large number of people and categories the data in the length of hospital stays, medical histories and any surgical procedures before calculating payouts.

Germany's **Snapsure** and the UK's **Spixii** are also following similar trend. The Spixii chatbot draws on user data and contextual data from multiple sources to advise a customer on which insurance to buy, by simplifying the financial jargon into a simple and understandable language. Spixii is in early testing for P&C and life sales. Also, **Aviva** in the UK and **Liberty Mutual Insurance** in the US have both launched '**skills**' (the Amazon term for apps and services on Alexa) for Amazon's Echo voice activated device.

IMPACT OF ARTIFICIAL INTELLIGENCE ON THE INSURANCE SECTOR

The very idea to create an artificial intelligence is to make the lives of humans easier. Last few years insurance companies have witnessed improvement, up-gradation and innovation due to the adoption of the emerging technologies like, artificial intelligence.

Improvement: Since a large portion of insurance companies claims are covered internally, the application of technology could significantly improve their business and operating models. Digital technology led to the speed dissemination of new trends and technological advancement which are existing in the market. Customer beliefs and behaviors changes at a much faster pace than in the past, when news were propagated through traditional media. As insurance companies rely heavily on static database, they need to understand how changing behavior in certain customer segments impacts their losses. Therefore, use of modern technology helps the insurance companies to notice and analyze such trends in their data so that they can react quickly and adapt their *pricing, underwriting, claims handling, and fraud detection*. Digitization increases the transparency of the product offering. As the machines act only according to the data fed into them so, the problem of disclosure of information are solved on the part of the insurer.

Up-gradation: Several insurance products have already been upgraded through digitization like, chatbots which are available for the customers 24/7 in assisting in buying a policy and even answer the queries regarding the claims without any human intervention. Technology enables insurance companies to extend their offerings and services in areas that are not connected to the insurance industry any more. Services and products that provide additional value to customers, when they make a claims. An insurance company can significantly *reduce its operating and claims costs throughout the process*. More importantly, customers will be able to experience and value a smoother claims process by management and settlement of data by the use of artificial intelligence, which can provide them with customer satisfaction.

Innovation: The large corporate insurance business already uses individual coverage concepts, where every contract is geared towards specifying the individual risk that is insured. This approach is very complex and time consuming. The coverage could be adapted to changing life and risk situations in real time, and could even be made partially automatic. Such automation are evident when the consumer are in conversation with a chat bot. The consumer would describe what coverage they need and suggestion are made accordingly. *It minimizes the cost and time of both the parties, insurer and their customer. It is also capable of reducing the chances of errors and reaches the point of accuracy.* The complete absence of the emotional side, makes the machines equipped with AI think logically and take the right program decisions.

RISKS AND UNCERTAINTIES

Beyond being beneficial for several reasons, AI also comes with far-reaching implications upon the economy, mobility, security and the environment. Risks and benefits will appear in the short or long term depending on how long it takes AI applications to be deployed in the real world. The rate of adoption depends on the level of investment in research and development in each application field. Companies face new liability scenarios and challenges as responsibility shifts from human to machine. The amount of data insurers have is both a curse and a blessing. It becomes very difficult to manage data for new and meaningful information. But on the other hand, handling of such massive datasets requires significant computing power and must be managed very carefully to generate learning that is valuable. Creation of artificial intelligence requires huge costs as they are very complex machines. Their repair and maintenance require huge costs. They have software programs which need frequent up gradation to cater to the needs of the changing environment and the need for the machines to be smarter by the day. In the case of severe breakdowns, the procedure to recover lost codes and re-instating the system might require huge time and cost which can create a panic state for an organization. Recently, a group of DeepMind researchers found out that it is possible for artificial intelligence to act in an 'aggressive manner' when it feels that it is going to lose out. In 2015, Google Photos identified two African American people as 'gorillas'. Brooklyn resident Jacky Alcine noticed that photos of him and a friend, both of whom are of African origin, were tagged under the label 'gorillas'. Similarly, Microsoft's AI chatbot 'Tay' went on making racist, inflammatory and political statements an hour after its launch.

On the other hand, AI tends to replace human resource with the machines which will disrupt the labor market, with loss of jobs and economic displacement. It will lead to changing the nature of long-established roles. There is a danger of some job losses of people who are not skilled enough to deal with such advancements but also, plenty of higher-skilled job would be created. AI raises concerns around personal data, particularly the extent to which this can be used to increase intelligence of agents. Insurance will need to better address certain exposures to businesses such as a cyber-attack, business interruption, product recall and reputational damage resulting from a negative incident. Effective risk management strategies will have to be developed to maximize the benefits of AI as it's introduced into society more broadly.

CONCLUSION

"The sky is the limit" – says **Oren Etzioni, CEO of Allen Institute of Artificial Intelligence**. Artificial Intelligence will not only improve the way we think or live our lives, but also explores new horizons. Most technologies can be used to the benefit of humanity, but can also be dangerous when they fall into the wrong hands, or when insufficient care is taken for safety and unforeseen side effects. The future of insurance industry lies in the adoption of well researched technologies of AI. It is very important for an organization to identify and assess the risks associated with these technologies before adopting them. They further need to develop strong strategic formulas and methods to overcome any state of data disruption or cyber-attack. If machine systems are involved in a decision-making process that have a significant impact upon the individual rights, this must be disclosed by the company or developers. The systems must be able to provide an explanation of their decision making that is understandable and reviewable by a competent human authority. Fairness and the dignity of the people affected should be prioritized in the development of AI system and its evaluation. Also, Current legal frameworks must be updated so as to accommodate the challenges posed by new technologies.

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Author Information

Saloni Kumari

Affiliation- Academic Tutor & TRIP Fellow at O.P.
Jindal Global University, Sonipat. (Law School)
