2022 WINNER SUBMISSION

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Artificial intelligence meets human intelligence

Insurance professionals are increasingly dependent on emerging technologies and data sources to drive efficiency, enhance cyber security, and respond to customer needs. How do we strike the right balance between digitisation and maintaining a human element?

By Yijing Vicky Zhang

1. Introduction

Artificial intelligence (AI) underlying technologies are already part of our life through business, homes vehicles, communications and more. The disruption from COVID-19 has accelerated the digitisation of the insurance industry. Organisations have adjusted to accommodate remote workforces, expand digital capabilities to support distribution, and upgrade online channels. The future workplace needs to encourage human-AI collaboration to embrace extended intelligence (James, 2020). The collaboration is blending AI's speed, scalability and quantitative capabilities with human's leadership, creativity and social skills. We are experiencing this extended intelligence everyday now and it is continuously evolving and reshaping the future insurance value chain. For the purpose of this paper, the focus is on how companies utilise divergent skills of humans and machines to enhance business processes, customer interaction and data security. The understanding of artificial intelligence is based on Kelley et al.'s (2018) as 'a computer system that can sense its environment, comprehend, learn and take action from what it is learning'. Human intelligence (HI) described as 'reasoning, planning, solving problems, thinking abstractly, comprehending complex ideas, learning quickly, and learning from experience' (Colom, Karama, Jung & Haier, 2010). Machine and human essentially have different qualities and abilities. AI based machines are fast, more accurate, and consistently rational but they are not intuitive, emotional or culturally sensitive (De Cremer and Kasparov, 2021). Therefore, the central question really is how do we join forces?

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2. How do we collaborate to improve internal efficiency?

Bohnert et al. (2019) show in their study that digitalisation activities have a significantly positive impact on the business performance of insurance companies. There are three degrees or stages of AI, narrow, general and super. For the insurance industry, most practitioners are focused on implementation of artificial narrow intelligence through machine learning and monitoring the technological development of artificial general intelligence though deep learning (Abrardi et al. 2019). AI has generated new insights and led to changes in automation of business process and decisions (Zarifis, Holland and Milne, 2019).
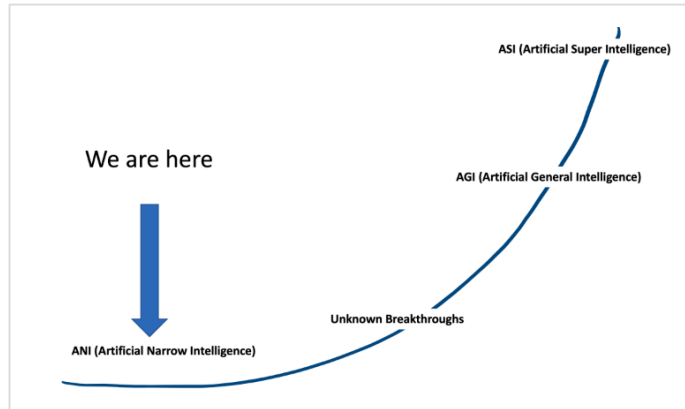
(Angrignon, 2020)

Artificial narrow intelligence system can perform very specific physical or cognitive task, they operate within limited context and a predefined range (Eling, Nuessle & Staubli, 2021). These AI driven applications have higher speed of execution, operational ability and accuracy for administrative repetitive tasks. The aim is AI focusing on performing specific physical or cognitive tasks, so that skilled employees can have more time to concentrate on value adding tasks. There are some areas that AI technology should be an asset to help humans make smarter and more informed decisions (Wilson and Daugherty, 2018).

2.1. Operation and underwriting

Automation can remove low value repetitive tasks from humans that are not engaging and generally considered boring. This could equate to removing thousands of tasks per day which would free workforce up to focus on and deliver greater technical expertise on more complex problems. For example, machine learning has proved successful at automating repetitive operation tasks such as automatic matching of closings and sending of policy documents. It results in massive savings in time and effort.

Data driven tools, algorithms, and models are built for underwriters to form a prescriptive analysis towards risks (Luciano, Ameridad, Cattaneo & Kenett, 2021). Insurance business models can now shift from loss compensation to loss prediction and prevention. A rules-based underwriting system which is able to make decisions in real-time using machine learning to define parameters and controls (Śmietanka, Koshiyama & Treleaven, 2020), can be paired with an expert team such as an underwriter that examines the more complex cases and disclosures, using the benefit of experience to make decisions (Cheung, 2022). Combining AI recommendations with human intuition, can deliver a more aligned strategy and optimised risk selection. For example, risks with more complex history or larger sums insured or broader coverage will require human underwriters, all of these cases are looked at individually. Machine learning certainly has helped to refine the initial process, though for more complex cases, human judgement will always be needed across different types of insurance products.

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2.2. Sales and distribution

There are a lot of alternative channels to access information nowadays. Information is available on company websites, social media pages, and many products can be purchased via online platforms. Insurance intermediaries that use the right AI tools can help to sell nearly all types of coverage and manage their portfolios. AI-enabled bots assist human workers to optimise their tasks and find potential deals for clients. These tools change customer interactions with a mix of in-person, virtual and digital processes which are shorter and more meaningful (Adam, Wessel & Benlian, 2020). The face to face connection cannot be replaced by technology, for example, making a joke or sharing a personal story is natural to people but is tricky for machines. Professionals can build long term relationship with each individual client through tailored product offers, personalised advisory services that meet exact current and future needs. AI also analyses huge amounts of customer information to target individualised marketing campaigns and potentially increase response rates. Employees can focus on monitoring the campaign process and analysis, report results and make more meaningful interpretations and recommendations for improvement (Yang, Li, Ni & Li, 2021).

2.3. Claim management

Automated claims processing can increase efficiency by handling initial claims routing (Zarifis, Holland and Milne, 2019). The processing time can be shortened significantly from first notice of loss to examination of claim evidence and accessing the loss amount. Human claims management focuses on complex and unusual claims, contested claims. Human workers need to interact and negotiate with different stakeholders and conduct random manual reviews of claims to ensure sufficient oversight of algorithmic decision making (Vyas, 2020). AI is also helping to fight insurance fraud. The underlying application can suggest and detect fraud based on patterns of claims, customer interactions and behaviour (Johnson & Verdicchio, 2018). AI can optimally identify those and the human worker can flag it for a deeper investigation.

The collaboration between AI and HI would accelerate business process which leads to higher productivity and overall better performance (Dunn Cavelty & Wenger, n.d.). AI's role in the business model is continuously increasing and human workers can work on higher level tasks and embody human skills to solve complex problems, such as focusing on the breakthrough to artificial general intelligence (Thrall et al. 2018).

3. How do we collaborate to respond to our customers better?

Optimising the integration of AI and humans can improve customer services (Freeze, 2021). Using AI to expand target audiences and reach out to potential customers by offering the desired products and services. It can help to improve servicing by automating simple tasks such as a chatbot that can answer general inquires and provide recommendations. Also, AI is able to understand customers better and offer personalised selection of product. Big data allows a company to analyse client's behaviours more clearly (Zhang, Dong & Ota, 2022). The underlying algorithm is capable of

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calculating and predicting needs and hence recommend products and services related to previous choices, experiences, habits, behaviours and preferences (Allam and Dhunny 2019).

Technology can be used as a catalyst to connect more people to help us identify ways to interact with others that we may not have previously known (Hall, 2019). Customers are still looking for human interaction so companies need to elect the right use case and area for AI and play to its strength (Walch, 2019). For example, when a customer needs to lodge a claim. A chatbot may be able to provide the basic information required to lodge a claim and record some details. However, AI cannot offer empathy or emotion, traits native only to humans. On the other hand, if the customer calls a service centre, employees can express sympathy easily but the customer is likely to repeat the conversation many times to get to the right department or deal with different customer representatives on the case. The ideal process can be AI sharing the information with claims and the customer does not need to repeat themselves again. Then human agent can express their feelings, directly address questions, issues or concerns and add value to a real customer experience. The switch between human and AI contact needs to be seamless to achieve better customer satisfaction. To improve in managing this relationship, it is important to keep humans in the loop so both humans and AI are constantly updating information or knowledge and any problems can be escalated quickly. Creating the balance between AI and humans is creating a culture with a mixture of humanity and technology.

4. How do we collaborate to fight cyber-attacks?

Cyber security refers to 'a set of processes, human behaviours and systems that help safeguard electronic resources' (Zeadally, Adi, Baig & Khan, 2020). Accordingly to a recent report by Juniper research, the prediction of the cost of cybersecurity incidents will increase from $3 trillion each year to more than $5 trillion in 2024 and average yearly growth of 11%. Some common attacks such as phishing and spear-phishing attacks, password attacks, malware attacks, birthday attacks, and Man-in-The-Middle attacks are targeted to steal information, track information and device control for financial extortion (Kure, Islam & Razzaque, 2018). The increasing number of threats and attacks has encouraged businesses to adopt artificial intelligence to improve data defence accuracy (Adams, Rao and Carr, 2021).

Responsible data management is considered a precondition for a successful implementation of AI and HI which leads to minimise or prevent data breaches (Holland, Mullins & Cunneen, 2021).

Appropriate AI techniques first collect and then process large amount of raw data, detects attack anomalies and automatically processes it to improve the speed and accuracy of predictive system monitoring, threat detection and incident response activities (Naik, Mehta, Yagnik & Shah, 2021). Automation is capable of decreasing operational errors and making it seamless to complete tasks but using AI to detect cyber-attacks may generate a large number of false positives. Therefore, a system driven by AI in cyber security still require human intervention. Applications and software is lacking a contextual awareness which may lead to wrong identification of attacks or missing them completely. The need for human expertise to identify potential breaches or risks and make the essential decisions

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(Oche, 2019). If supported by adequate tools and training, humans and AI can work together. AI can do a lot of legwork at scale in analysing and processing data to help make the right decision and humans can concentrate on critical tasks where an algorithm or an automated machine turns out to be inappropriate. Humans need to assist machines to train AI to perform certain tasks, explain the outcome of those tasks, especially when the results are counterintuitive or controversial and sustain the responsible use of machines (De Cremer and Kasparov, 2021). AI is an intriguing tool that could become a required tool for the next generation of cybersecurity professionals.

5. Conclusion:

In today's insurance market, artificial intelligence has changed many activities across the insurance value chain and the trend is set to continue in the future. The relationship between a person and AI actually transforms who people are. The day-to-day activities people perform changes for the better. People are no longer set to solve the same problem over and over. Instead, people can travel across many domains, understand a domain's problem and create an AI to tackle the problem. AI can fill in a lot of processing steps, assisting with making decisions and protecting data from cyber space but there are lots of emotions, experiences, and senses that only people can understand. The human values and ethics are always necessary components to real world scenarios. AI and humans are working together to double check for errors and help augment each others' capabilities. By integrating human talents and AI-driven functions, companies can optimise their overall performance including greater efficiency, higher customer satisfaction and better cyber security (Ahidin, 2020). Human contribution regarding expertise and talent remain integral in the future insurance industry. Insurance workers generate value from AI use and applications to integrate skills, technology and insights for further development and innovation. The insurance organisations of the future need to embrace collaborative intelligence, transforming their operation, market, industry, and—no less important—workforce.

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