

2021 ALUCA Turks Scholarship

2nd Runner-Up Paper

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Artificial Intelligence in Claims and Underwriting

Legal & General America launched a trial leveraging trust and facial and image recognition capabilities of machine learning to provide instantaneous automated assessments to individuals through selfies. In exchange for a selfie, consumers were provided with an estimate for life insurance based on an estimate of age, gender and BMI. It is not beyond imagining that the behavioural drivers of mortality could also be digitally assessed via access to a consumer's online interactions and be used to personalise the product offerings, or that this data could be used for underwriting and claims assessment.

To what extent can traditional risk and claims assessment methods be replaced with digital end to end platforms? Is this a good thing? Are there ethical limitations to the use of the requisite data and to what extent may the move to deep learning in underwriting and claims embed the type of unconscious bias that is being experienced with credit based computer scores?

Creating Balance: Thoughts on evolving traditional risk and claims assessment methods through utilisation of Artificial Intelligence, considering ethical limitations and unconscious bias

AI (Artificial Intelligence) is already part of our everyday lives. We find a restaurant for a night out on google maps, ask Siri what the weather is like today or lodge a complaint for an online shopping order through a chatbot. The life insurance industry has been a slow adopter of AI, and as an industry we have now found ourselves in a position where customers are expecting more.

In 2020, the NICE in Contact 2020 Customer Experience Transformation Benchmark¹ completed a survey of consumers from the US, UK, Australia and Canada to understand consumer expectations when it comes to service delivery. When asked about attitudes in regards to AI it tells an interesting story. 67% of consumers identified that they had come into contact or experienced AI (up from 46% in 2019). 45% of those surveyed stated they would prefer AI as a first contact point to resolve an issue and over one third of those surveyed felt that AI such as chat bots and virtual assistants make it faster to get issues resolved. This study is just one window into how AI is impacting customers and the speed at which their perceptions are shifting.

Life insurers have an opportunity to create a balance in how they utilise AI, to ensure that both the organisation and the customer benefit. It is important that as an industry, as we review our underwriting risk and claims assessment methods, and application of AI, we approach this in a customer centric way. As we do this we need to consider we are being transparent and ethical in how we use our customer's data, and are aware and manage the risk of unconscious bias.

Customer expectations of AI

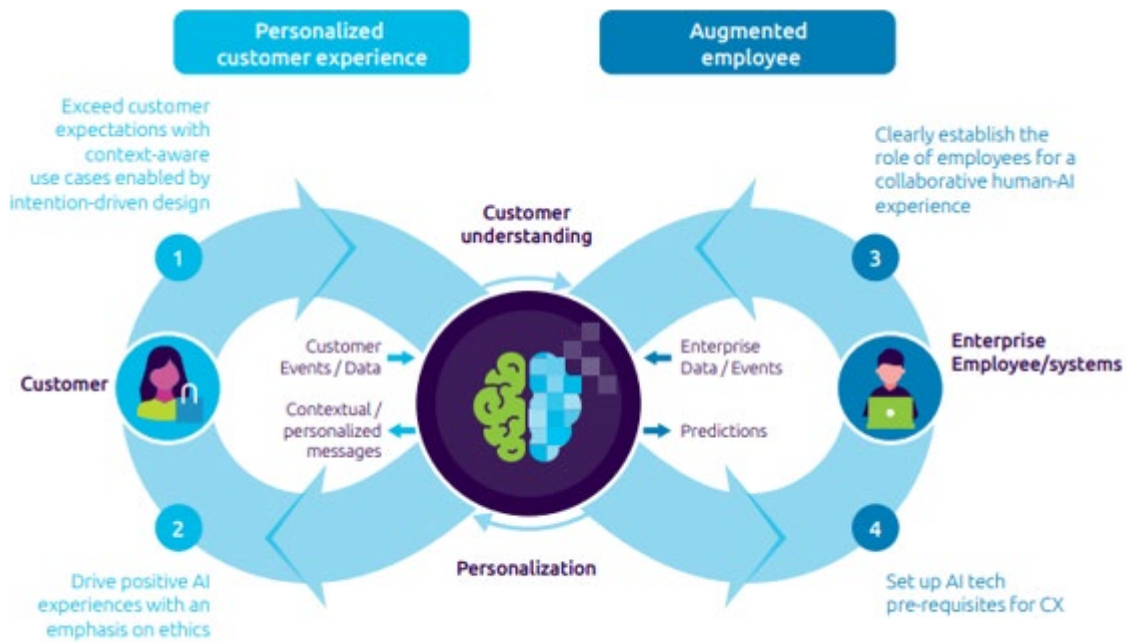
Customers are expecting to come across some form of AI when they interact with an organisation, but they are wary of what this technology can do or deliver for them. When it works well, they are willing to engage in the AI, if it means that servicing for them is streamlined and/or easier. However, if the technology isn't up to par, they can become frustrated and even more distrustful of the organisation.²

Capgemini, in their paper "The art of customer-centric artificial intelligence"³ propose the below model. By our customer sharing data, the organisation understands the customer better, augmenting the employee assisting the customer, which then allows for personalisation. As a life insurer if we keep the customer at the centre of why we are utilising AI, it is more likely to be successful.

¹https://www.niceincontact.com/-/media/niceincontact/resources/datasheets/2021/05/0003635_en_2020-cx-benchmark-consumer-research-global

² <https://www.fintechnews.org/report-shows-consumers-dont-trust-artificial-intelligence/>

³ https://www.capgemini.com/au-en/wp-content/uploads/sites/9/2020/07/AI-in-CX_CRI-Report_16072020_V4-7.pdf



Source: Capgemini Research institute analysis⁴

To enable this to happen, we are required to communicate with our customers openly and honestly why we do what we do and what we are striving to achieve. To enable us to do this we need to take a step back, and consider the purpose of utilising an AI tool or machine learning. Are we keeping the customer at the focus of the use of this tool and how do they benefit? If we can answer this question and always be able to articulate it to our customer, we will be in the best place to implement AI in various ways in both claims and underwriting.

Managing Unconscious bias

The European Commission’s High- Level Expert Group on Artificial Intelligence, the Australian Federal Government department of Industry, Science and Energy Resources and The European Insurance and Occupational Pensions Authority all provide ethical frameworks for artificial intelligence⁵⁶⁷. The best way to manage unconscious bias in AI is for the industry to develop and adhere to a framework in regards to AI that applies specifically to the life insurance industry. There is certainly opportunity for the Financial Services Council of Australia to develop a framework for AI as part of their Life Insurance Code of Practice, given this does not currently exist.

Fortunately, the above mentioned existing frameworks all support similar guiding principles namely ensuring that AI has human centred values, is fair, transparent, protects privacy and security and is contestable, robust and able to be held to account.

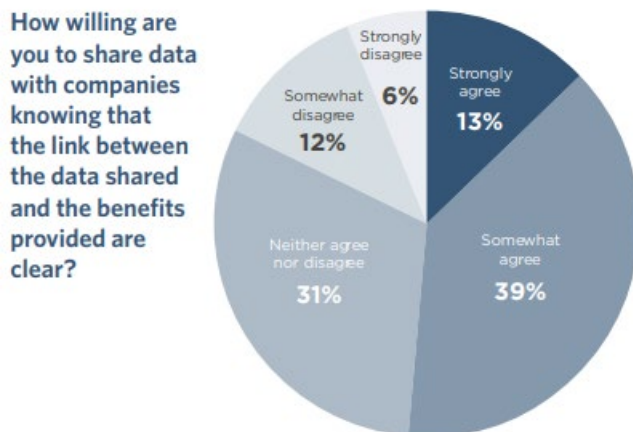
⁴ https://www.capgemini.com/au-en/wp-content/uploads/sites/9/2020/07/AI-in-CX_CRI-Report_16072020_V4-7.pdf
⁵ <https://www.eiopa.europa.eu/sites/default/files/publications/reports/eiopa-ai-governance-principles-june-2021.pdf>
⁶ <https://www.industry.gov.au/data-and-publications/australias-artificial-intelligence-ethics-framework/australias-ai-ethics-principles>
⁷ <https://www.aepd.es/sites/default/files/2019-12/ai-ethics-guidelines.pdf>

All of the principles outlined by other frameworks apply to and are important for life insurance however, of most importance for the life insurance industry is ensuring we are being transparent around data use and security both when developing and implementing AI, and we are able to demonstrate how we review and ensure reliability and validity of a AI when in use; both to consumers and regulators.

Creating trust through transparency

For customers to trust the life insurance industry with their personal medical data, and allow us access to even more information to assist us in building and amplifying AI (e.g. wearables or home assistant devices), creating transparency with our processes and practices is vital. We need to explain to customers specifically how we are using their data, how it will benefit them and other customers and provide confidence that their data is stored securely.

As per the below graph, from research conducted by the University of Southern California⁸ 83% of respondents are either open or neutral in their opinion about sharing data with companies if the link between the data shared and the benefits provided to them are clear. Customers know that we live in a data age, but scepticism creeps in when they are unclear why they are providing specific information and what it will be utilised for. Creating transparency is the only way in which the life insurance industry is going to be able to gain permission to access and utilise data to improve servicing, more accurately assess risk or process a claim.



Source: University of Southern California⁹

Over time we are likely to see an increase in customers being comfortable with utilisation of data and less concerned about data privacy. In the same study mentioned above, 47% of the boomer generation were very concerned with data privacy, compared to only 28% of

⁸ <https://s3.amazonaws.com/factual-content/marketing/downloads/Factual-Consumers-Data-Privacy-Perceptions-Report.pdf>

⁹ <https://s3.amazonaws.com/factual-content/marketing/downloads/Factual-Consumers-Data-Privacy-Perceptions-Report.pdf>

Gen Z. In fact, younger generations expect an increase in customer service and a personalisation of service, if they share their data.

This does not lessen the need for transparency, as even Gen Z still have an expectation that they will understand how their data is utilised, what this shows is as a global community we are moving away from an “opt in” culture to an “opt out” culture when it comes to sharing data. It may be that this becomes a differentiator for insurers in the market – those that show transparency with their utilisation of data may become preferred over insurers who do not disclose how their customer’s data is being used.

Reliability = Credibility

Within the healthcare industry in the US, a recent MIT study found that only 23% of machine learning studies in health care used multiple data sets.¹⁰ Whilst this gap is understandable given that healthcare organisations would be reticent to share their data, especially if the AI provides a competitive advantage for them in patient care, this issue reduces the reliability of the tools themselves. The life insurance industry is at risk of falling into the same trap.

To allow appropriate reliability and validity of AI tools, they require testing against multiple sets of data. Without this, not just as individual insurers but as an industry we are building in unconscious bias, purely by only utilising the data available to us at our own organisations. This therefore requires a rethink of how insurers feel about being transparent with their AI amongst their competitors. Sounds unlikely if this is a key differentiator for them in the market. However, without this, as an industry we will not be able to develop the most robust and best AI for our customers. What is really required is an intermediary between life insurers where data could be housed and de-identified from a specific organisation to allow for AI tools to be modelled and run through the data to ensure robustness and accuracy of the AI.

Without this kind of rigour, the credibility of life insurers and the AI used will remain, and unconscious bias is likely to creep in. It will be acknowledged that whilst these systems exist without use of multiple data sets, reliability will remain low.

AI in underwriting vs claims – the case for two separate AI models.

Providing a life insurance customer with one digital end to end platform that they are able to access whatever stage of the customer journey they are at, allows somewhere for the customer’s data to be stored and a seamless platform for interaction with an organisation. Operationally, when underwriting risk or assessing a claim, different AI models are required to ensure that AI is utilised in the best way both for customer and insurer.

AI in underwriting – a streamlined approach

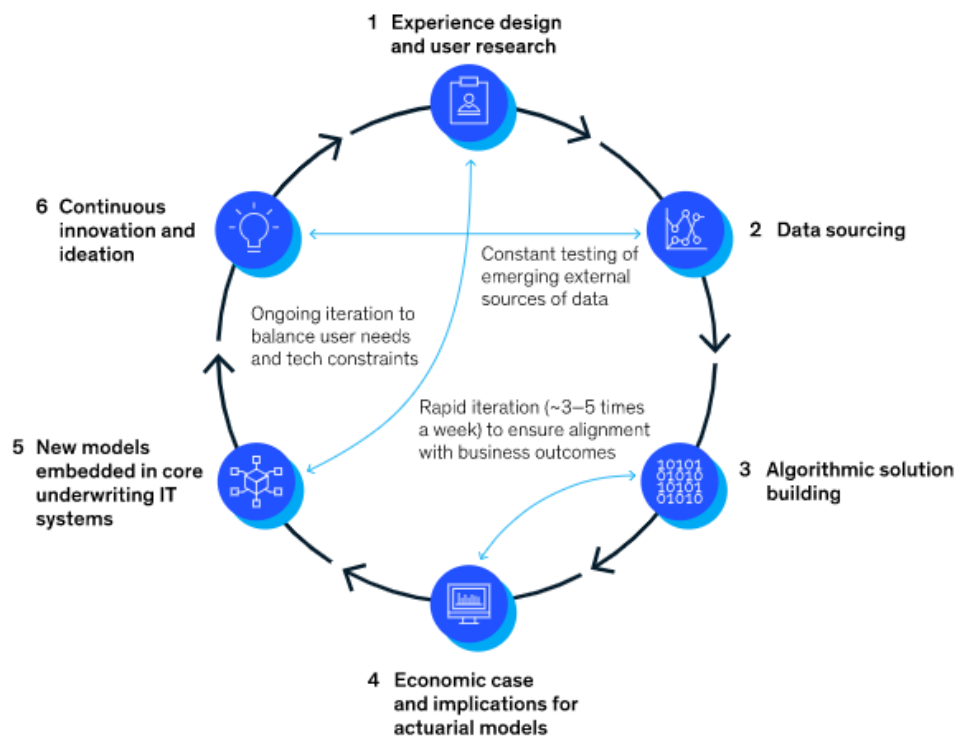
When customers are purchasing insurance, they want a personalised service that is delivered efficiently and tailored to them.¹¹ Underwriting is a complex process in life insurance and to achieve the best cover for the individual AI can create efficiencies. In the

¹⁰ <https://www.statnews.com/2021/06/02/machine-learning-ai-methodology-research-flaws/>

¹¹ <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/strategy/us-cons-life-insurance-consumer-study.pdf>

McKinsey article “Rewriting the rules: Digital and AI powered underwriting in life insurance”¹², four steps are outlined to streamline underwriting utilising AI.

Within this model, the customer observes efficiencies and the least amount of “inconvenience” for the underwriting process to occur. For this to be successful we need to use AI in a way that creates the ability to review data expediently by creating multiple feedback loops (as per the diagram below). By having multiple feedback loops during the underwriting process, there are multiple opportunities for redevelopment and/or refinement. By embracing a systems thinking approach of the end to end customer experience and breaking down silos in the process, this allows us to embed AI in the underwriting model, create opportunities for improvement and allowing the industry to head towards innovation. This can be assessed from the customer’s perspective by less touch points by the underwriter, or only having to engage with the underwriter through digital channels only.



Source: McKinsey analysis

Source: McKinsey Analysis¹³

AI in claims – a customer centric hybrid model

The utilisation of AI requires a different approach when a customer is lodging a claim. Whilst a customer wants their claim to be expediently processed, they also want empathy, support and to know that they will be looked after. In research completed by the Harvard Business

¹² <https://www.mckinsey.com/industries/financial-services/our-insights/rewriting-the-rules-digital-and-ai-powered-underwriting-in-life-insurance>

¹³ <https://www.mckinsey.com/industries/financial-services/our-insights/rewriting-the-rules-digital-and-ai-powered-underwriting-in-life-insurance>

Review “people embrace AI... as long as they work in partnership with humans”¹⁴. This is embracing the concept that AI is transparently being utilised not to replace the human element of service delivery but to assist and augment the experience.


The complexities of life insurance products in the Australian market, as well as requiring the assessment of a wide range of medical conditions and subsequent functional capacity against both own occupation and “any occupation” definitions, claims assessment is likely to continue to require a human led approach for the foreseeable future. However, this does not mean that there is not space for AI in the future of claims.

Some life insurers are already implementing triage rules engines to assist in triaging claims at lodgement time by complexity, to ensure that the appropriate resources, such as rehabilitation support are engaged early on the right claims. The future of claims and the use of AI could include software to assist in reviewing complex or extensive medical documents, decision support tools that assist claims assessors to better engage with customers and ask the right questions, and/or feedback loops that allow the data gathered at claims time to be automatically analysed and provided to product teams to assist in the development of new products, shortening product development times.

As per the McKinsey article “Claims 2030: a talent strategy for the future of insurance claims”¹⁵ there is potential for the use of AI to create diverse and innovative roles within life insurance, such as Diana’s role of a “digitally enabled quality assessor” or Katja as a “claims technology product owner”.

¹⁴ <https://hbr.org/2020/10/when-do-we-trust-ais-recommendations-more-than-peoples>

¹⁵ <https://www.mckinsey.com/industries/financial-services/our-insights/claims-2030-a-talent-strategy-for-the-future-of-insurance-claims>



Digitally enabled quality assessor

Diana

Key characteristics:
tech savvy, detail oriented, data lover

About
I've worked as a claims handler and in the claims-analytics group and have a solid understanding of what good performance looks like in both people and technology. I was very excited when this job opened up because it gave me a new path to explore without becoming a manager.


Key components of my work day

Handler quality: I use data and metrics to assess the decisions made by claims handlers. When metrics or results look surprising, I review a subset of files to understand what is happening, and then I provide a fact base for the team leader to use when coaching claims handlers.

Technology quality: Each week I review the decisions made by the algorithm. To do this, I focus on areas that claims handlers overruled, combined with a random sample. If I identify an issue, I work with the claims technology-product owners to troubleshoot it.

Source: McKinsey Analysis ¹⁶

¹⁶ <https://www.mckinsey.com/industries/financial-services/our-insights/claims-2030-a-talent-strategy-for-the-future-of-insurance-claims>



Claims technology-product owner
Katja

Key characteristics:
critical thinker, tech guru, claims know-how

About
I started as a claims handler. In my third year on the job, I helped build a decision-making tool, and was hooked on data science and technology. I now spend all of my time working as the bridge between data science and claims to build decision-making tools.

Key components of my work day
New development: I work with claims leaders and quality assessors to identify where in the claims process we can use data to help handlers make better decisions. I also help build the decision-support tools.

Algorithm maintenance: Once a tool is live, I work to make sure it is performing as expected, and I make any adjustments as necessary. Feedback from handlers and quality assessors also helps me quickly address any issues.

Learning: I stay on top of industry trends by attending seminars and reading industry news to learn best practices and identify potential technology partners.

Source: McKinsey Analysis¹⁷

These new “future claims roles” show a world in which we rethink claims roles beyond claims assessment, technical, rehabilitation, learning and development and risk and governance and think about how specialist AI focussed roles can augment the role of the claims assessor by utilising data and AI tools.

Conclusion

Within the life insurance industry, we need to embrace AI and evolve from traditional risk and claims assessment methods. This requires a different AI philosophy for underwriting (streamlining) to claims (a hybrid customer centric approach). Across both underwriting and claims we need to balance the need for servicing our customers and creating organisational efficiencies with being aware of ethical considerations such as unconscious bias. By taking a customer centric approach, focussing on creating trust through transparency and by sharing data amongst the industry to increase reliability and therefore credibility of AI tools, we can ensure that the life insurance industry continues to progress and meet customer expectations.

¹⁷ <https://www.mckinsey.com/industries/financial-services/our-insights/claims-2030-a-talent-strategy-for-the-future-of-insurance-claims>