2023 ALUCA Turks Life Insurance Scholarship Winning Paper

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The Rise of Artificial Intelligence

In June 2023 the Department of Industry, Science and Resources released a discussion paper inviting public submissions on the government's regulatory and policy responses to AI. The Department's discussion paper stated:

"AI is unique because it can take actions at a speed and scale that would otherwise be impossible. The speed of innovation in recent AI models are posing new potential risks and creating uncertainty about their full implications, giving rise to public concerns. While global investment in AI is increasing, adoption rates of AI across Australia remain relatively low. One factor influencing adoption is the low levels of public trust and confidence of Australians in AI technologies and systems…"

Is there a place for AI in the Australian life insurance industry? What aspects of an insurer's or trustee's business do you consider have the most potential to benefit from the implementation of AI? Do you consider limitations are needed around the use of AI in life insurance and, if so, what regulations and systems do you consider are appropriate or necessary? What do you see the future of AI bringing to the life insurance industry?

THE RISE OF ARTIFICAL INTELLIGENCE

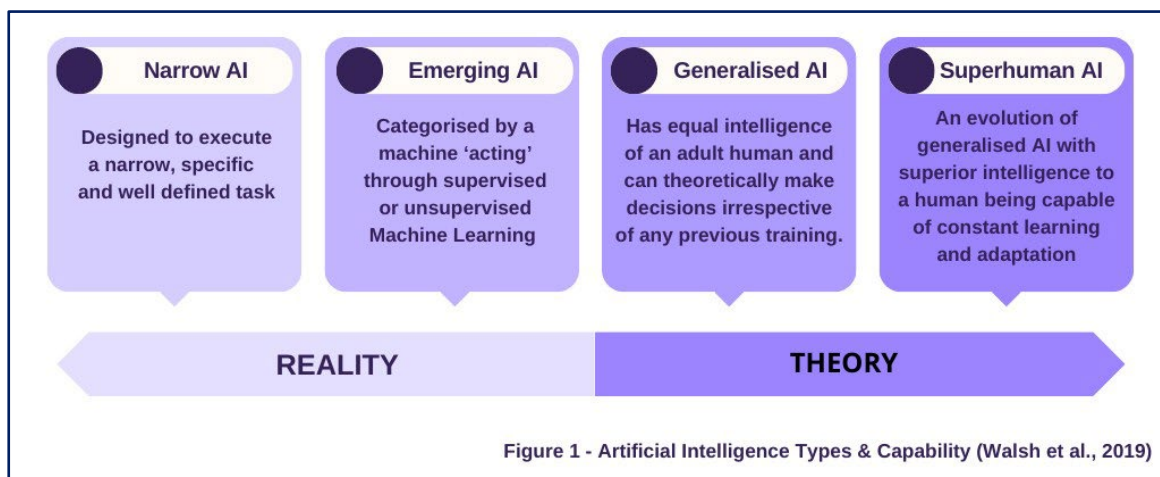**Life Insurance Implications: Is the risk worth the reward?**

Contents

Introduction

Artificial Intelligence (AI) is the overarching term to describe machines performing human-like cognitive tasks including the ability to sense, perceive, problem-solve, and undertake decision-making (Benbya, 2020). The technology represents a core part of the Fourth Industrial Revolution, which will have unprecedented impacts on organisations (Pelser & Gaffley, 2020, p. 2). According to KPMG (2022a), insurers that leverage digital assets including AI are expected to outperform their competitors due to the transformative potential across all facets of an insurer's organisation (Eling et al., 2022). Despite the anticipated benefits, there are global concerns about AI, and its impact on ethical standards related to data privacy, unlawful discrimination, and consumer safety (OECD, 2020). For Australians, a lack of trust in the technology is considered a major barrier to adoption across the economy (Lockey et al., 2020). This discussion paper will highlight the value that AI could deliver to the Australian life insurance industry. The report will also highlight AI's limitations and discuss appropriate governmental and organisational governance mechanisms to mitigate the risks of the technology.

Types of Artificial Intelligence

AI's increasing ability to perform or mimic more sophisticated human tasks has been facilitated by advancements in computer software, Cloud technology and vast amounts of available data through the digitisation of the economy (Walsh et al., 2019, p. 22; Pelser & Gaffley, 2020, p.2 & p. 40). While there is no consistent definition of AI, Walsh et al. (2019, pp. 20-21) divides the technology into four categories (Figure 1).

Narrow AI	Emerging AI	Generalised AI	Superhuman AI
Designed to execute a narrow, specific and well defined task	Categorised by a machine 'acting' through supervised or unsupervised Machine Learning	Has equal intelligence of an adult human and can theoretically make decisions irrespective of any previous training.	An evolution of generalised AI with superior intelligence to a human being capable of constant learning and adaptation

REALITY   THEORY

Figure 1 - Artificial Intelligence Types & Capability (Walsh et al., 2019)

Emerging AI represents the current technology level, with Generalised and Superhuman AI not currently existing beyond theory (Benbya, 2020). The constant availability and diversity of data sources has allowed Emerging AI algorithms to be 'trained' in combination with Machine Learning (ML) to deliver outcomes via a variety of mediums (Deloitte, 2017; Figure 2).

Figure 2 - AI & Machine Learning Applications (Deloitte, 2017)
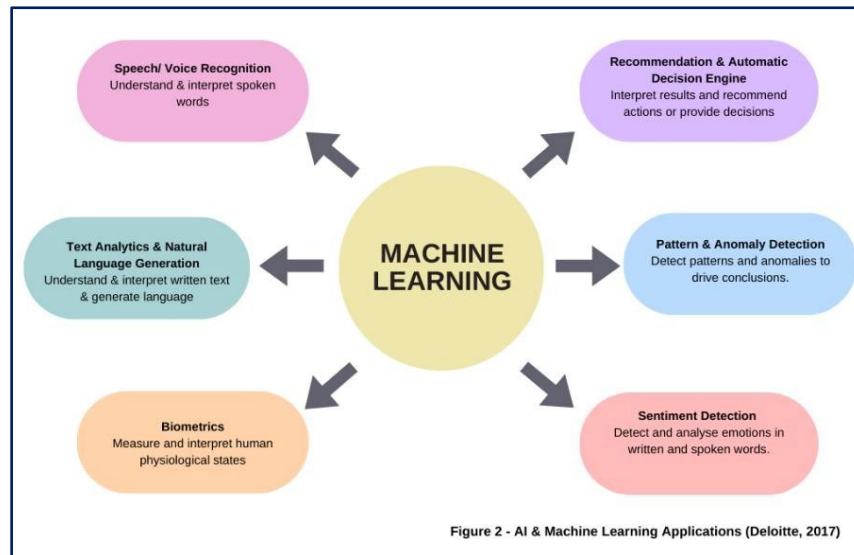
Claims & Underwriting — Moments of Truth Redefined

Claims and underwriting applications represent a key interaction point for customers, and AI's technological capability will fundamentally change how these business units operate and deliver value to consumers. Firstly, both departments could implement AI to automate administrative processes, improving operational efficiencies to allow staff to maximise productivity on 'value-add' tasks (Roa & Verweij, 2017). Underwriters could improve existing risk assessment algorithms by incorporating historical claim information using *Text Analytics* whilst incorporating client *Biometric* data to refine customer risk profiles (Balasubramanian et al., 2020). This strategy would allow organisations to calculate risk more accurately when designing *Automated Decision Engines*, thereby increasing the number of applications that could be assessed without human intervention (Van Dalen et al., 2021; Balasubramanian et al, 2021).

Claims operations could apply similar principles for their applications to maximise 'instant decisions' without human assessment. AI algorithms can also be created for *Pattern & Anomaly Detection* to identify fraud or indicators of complexity requiring human intervention (Cline & Kamalapurkar, 2021). *Natural Language Generation* or *Speech Recognition* models could be used to provide customer updates to enquiries in addition to 'sensing' language (*Sentiment Detection*) indicative of complaints, allowing insurers to address these issues proactively (Bassi et al., 2017).

With AI assisting insurance officers with administrative tasks and some automated decisions, valuable time could be channelled towards applications involving complicated medical history, fraud, or litigation (Bassi et al., 2017; Balasubramanian et al., 2021; Cline & Kamalapurkar, 2021). Furthermore, these professionals would no longer need to focus on individual application churn; instead they can manage portfolios by looking at trends in decision outcomes, fraudulent activity, customer satisfaction, or develop insights for further operational enhancements (Cline & Kamalapurkar, 2021; Van Dalen et al., 2021).

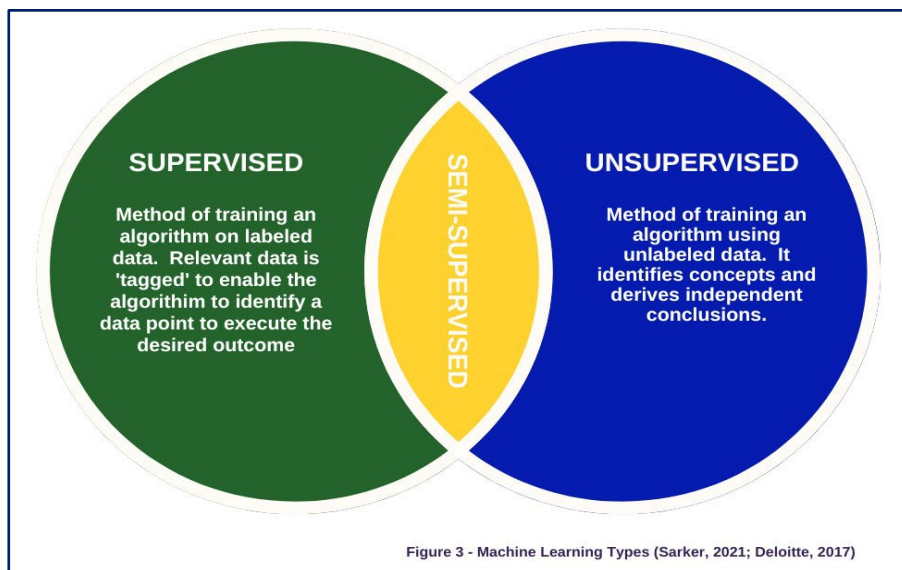## Product, Pricing & Distribution Revolution

The most influential aspect of AI is the impact on pricing methodologies and product design. Insurers traditionally analyse risk through actuarial calculations and statistics associated with groups of similar attributes (Deloitte, 2021). AI's continuous 'learning' capability would allow insurers to improve the prediction of an 'event' through existing data points of policy holders (Lior, 2022). However, an AI algorithm could also analyse and update a consumer's risk profile by integrating other sources of health data (*Biometrics*) generated via digital intermediaries such as smart watches or fitness trackers (Balasubramanian et al., 2021). An insurer could also explore alternative biopsychosocial factors such as charitable giving and pet ownership via *Text Analytics* and its impact on risk profiles (Balasubramanian et al., 2020). These insights would allow insurers to segment customer risk more accurately and provide more competitive pricing based on a holistic range of risk indicators (Balasubramanian et al., 2021).

Product design and distribution will also be enhanced and revolutionised. AI's analysis via *Pattern Detection* in customer data would allow insurers to develop insights for product cross selling opportunities or design more tailored products based on a customer's circumstances (Eling et al., 2022). *Recommendation Decision Engines* could offer tailored product solutions based on customer responses to questions regarding lifestyle behaviours (Eling et al., 2022). Furthermore, the ability to continuously engage with customers through the availability and willingness of consumers to openly share 'live' data can provide insurers with the ability to adjust premiums or the product offering based on customers' circumstances (McKinsey & Company, 2017; Balasubramanian et al., 2021). The continuous flow of data also allows cost and product offerings to become dynamic and 'adapt' to the consumer based on their behaviours, meaning that offerings are always 'fit for purpose' (Deloitte, 2021).

The ability to hyper-personalise product offerings can attract and retain loyal customers, drive new revenue streams, and elevate the customer experience (KPMG, 2022a; Deloitte, 2023). The gathering of insights allows insurers to shift towards high value, proactive and tailored solutions for customers (Deloitte, n.d.). These positive impacts are critical given the often negative publicity received by insurers, and provide greater resilience to an industry that has in recent times experienced negative growth in revenue, profit, and profit margin (Martin, 2023).

AI's Risks and Limitations

AI's output only 'mimics' human behaviour and therefore must be taught with ML techniques using data as the source of its intelligence (Deloitte, 2017). The requirement of data leads to other challenges regarding the legal, ethical, and economic implications of its collection (Walsh et al., 2019, p. 23). Data insufficiency and lack of integrity have the potential to cause AI algorithmic bias, potentially leading to unfair insurance terms or unlawful discrimination against members (AHRC, 2022, pp. 21-23). Data that underrepresents population demographics has the potential to reinforce existing societal biases, in turn adversely impacting already disadvantaged communities (Walsh et al., 2019, pp. 177-179; AHRC, 2022, p. 23). The amalgamation of various data sources for analysis by AI raises issues of data privacy and information being used without permission or not as intended (Australian Government, 2022). How an AI algorithm is 'trained' with data also poses differing levels of risk regarding its explainability. 'Supervised' ML uses specific labelled training data to execute a predetermined goal, while 'Unsupervised' learning can derive insights through a variety of data sources independently without human intervention (Deloitte, 2017; Sarker, 2021; Figure 3)

SUPERVISED

Method of training an algorithm on labeled data. Relevant data is 'tagged' to enable the algorithim to identify a data point to execute the desired outcome

SEMI-SUPERVISED

UNSUPERVISED

Method of training an algorithm using unlabeled data. It identifies concepts and derives independent conclusions.

Figure 3 - Machine Learning Types (Sarker, 2021; Deloitte, 2017)

This contributes to the algorithmic 'Blackbox' phenomenon that raises challenges for insurers, given that some AI algorithms can produce unexplainable outcomes (Benbya et al., 2020). For product design and pricing, there may be challenges explaining features or price offerings if insights have been gathered from non-traditional data sources such digital intermediaries. Furthermore unexplainable 'adverse' claim or underwriting decisions would be difficult to defend in a dispute resolution context. The Blackbox phenomenon also challenges the core aspects of the industry's Life Insurance Code of Practice (LICOP) and legislation that sets legal and compliance standards of transparency, honesty, and fair dealings (Insurance Council of Australia, 2021; FSC, 2022)

The successful implementation of AI requires data, software, and relevant insurance subject matter experts (SME) to gather insights and design solutions for organisational benefit. The engagement of different stakeholders within the organisations could lead to a friction of priorities or differing assessment of risks that could impact the intended objectives of using the technology (Dourish, 2016). In the event of serious adverse outcomes there then remains the question of who ultimately takes responsibility (Benbya, 2020). With two thirds of Australians currently unwilling to trust AI (Lockey et al., 2020), these limitations must be addressed by the industry in a transparent manner. If these limitations are not addressed, consumer apprehension will be a significant barrier to the uptake of AI-powered insurance products and services, nullifying the benefits this technology could deliver to the insurance industry.

'Trust' is Key to AI's Regulation

Australia's response to the global challenges of AI has been to release ethical and automated decision frameworks in part modelled on the OECD guidelines (Australian Government, 2022; OECD, 2022). However, at this stage there is no overarching AI regulation at a federal level or specific to financial services.

Insurers should take proactive steps to influence an industry-specific AI governance framework using the current national principles as a blueprint. However, any industry framework must address Australian's lack of trust in the technology and place consumers at the forefront to drive the responsible use of AI. Gillespie et al. (2020) propose an AI 'Trust Model' focusing on similar principles to the national frameworks but with a distinct customer centric focus (Appendix 1). A customer centred AI governance model would ensure any industry regulations are aligned with the array of consumer protections already in place. AI regulations with consumers and trust building at the forefront would allow insurers to incorporate AI more broadly across their organisation, allowing it to be truly transformative (KMPG, 2020).

The industry should also look to current regulatory frameworks as a 'yard stick' when developing any AI governance frameworks. For example, Section 1.6 of the LICOP highlights the seven principles that apply to insurers' products and services, which include clarity, transparency, and fairness (FSC, 2022). The LICOP also goes into significant detail regarding policy design, communication, underwriting practices and claims handling, meaning that an AI 'minimum standard' would need to meet these benchmarks. Design and distribution obligations (RG274) also provide regulatory frameworks to ensure products are designed and targeted to an appropriate consumer base (ASIC, 2021a).

Federal legislation highlights that parties are required to act in the utmost good faith in a contract of insurance (*Insurance Contracts Act 1984* (Cth) s 13). AI that drives claims handling needs to be transparent, fair, and explainable for an insurer to demonstrate this requirement in addition to satisfying their financial services licence obligations (ASIC, 2021b). The *Privacy Act 1988* is already under review to ensure that it remains fit for purpose in the digital age (Australian Government, 2023). Furthermore, there have been recommendations for the government to provide guidance on anti-discrimination laws in the use of AI decision-making (Farthing et al., 2021, p. 108). Any future industry specific regulation is likely to require significant and prolonged consultation given its complexity; therefore, the industry should look to current regulatory frameworks as a potential benchmark if implementing AI in the immediate future.

Proactive Internal AI Governance

The regulatory environment is likely to grow in complexity with overlapping general and industry specific frameworks (Australian Government, 2022). Insurers should strongly consider implementing a recognised governance framework for managing technology such as ISO38500 to benefit from AI's potential and to mitigate risks (Standards Australia, 2016; Figure 4).

Figure 4 - IT Governance Framework - ISO38500 (Thatcher, 2018, p.27)
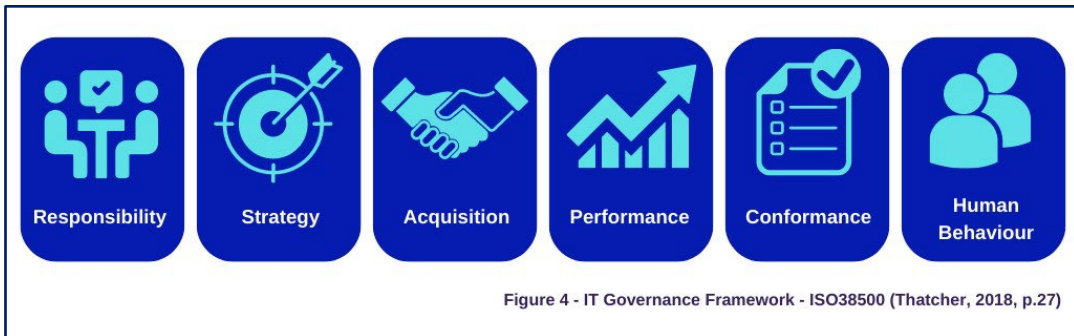
This framework provides a useful internal control mechanism, which could adapt as new AI regulation is implemented. The governance model emphasises having a holistic cross section of stakeholders with agreed upon delegations and responsibilities (Thatcher, 2018, p.43). AI's governance would include relevant SMEs, actuaries, and data experts. However, Board Members and Executives are also involved to ensure technological (AI) investment is aligned with strategic objectives, to maximise value creation and to effectively monitor risks (Thatcher, 2018, p. 51; Valentine, 2016; Figure 5). A diverse governing body allows AI to be considered against the organisation's requirements, regulatory obligations, and stakeholder expectations (Figure 5).

Figure 5 - Model of Organisational IT Governance (Standards Australia, 2016)
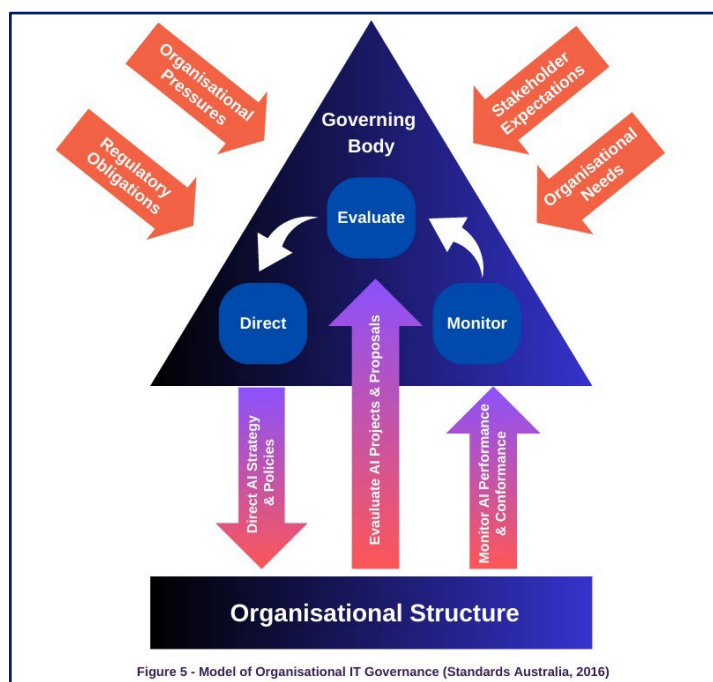
The governance framework also highlights the importance of appropriate AI technology acquisition and monitoring of AI performance against internal risk management frameworks, project delivery plans and technological key performance indicators (Thatcher, 2018, p.62 & p. 71). This ensures AI delivers the proposed outcomes while mitigating any unreasonable risks within financial constraints. Conformance invites external scrutiny of AI's implementation within regulatory obligations, while human behaviour is monitored to ensure AI is adopted appropriately and used correctly (Thatcher, 2018, pp. 106-110).

The implementation of this framework would help organisations demonstrate effective and responsible AI implementation to build trust amongst consumers and show responsible use of AI to regulators. However, it also keeps a human 'in the loop' of AI's outcomes, which is a key ethical safeguard to ensure the technology is responsibly used (OECD, 2020). The 'human element' will become increasingly important as the ability to explain and predict outcomes will potentially decrease due to the increasing sophistication of AI (Figure 6)

Figure 6 - AI Classification and Emerging Challenges
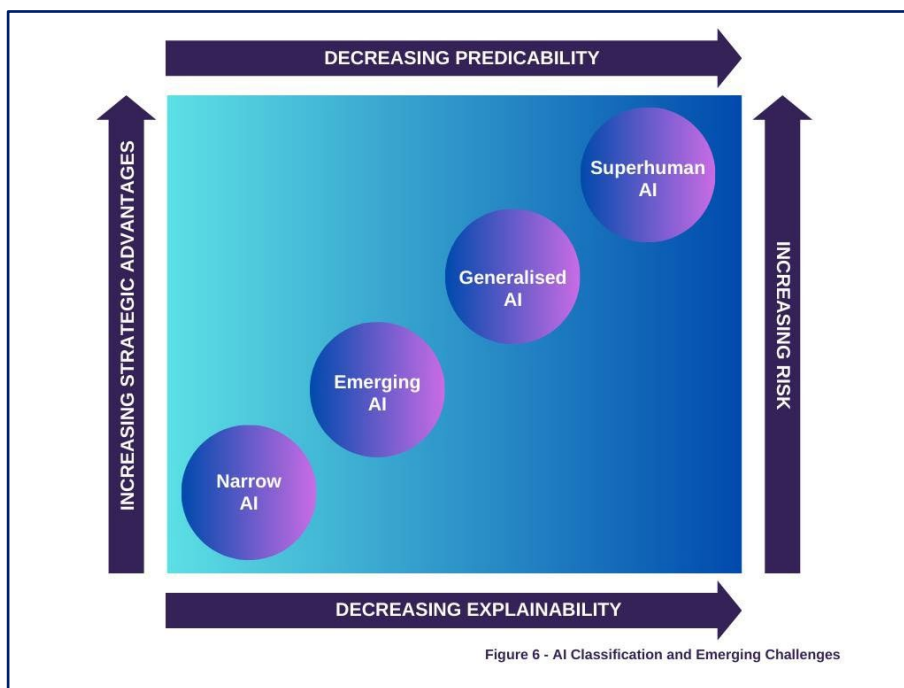
AI's Limits in Life Insurance

Given AI's widespread transformative impact, every facet of an insurer's business could benefit from the technology. However, organisations should not restrict the use of AI based on a department's function but rather, when considering the technology, fall back on internal governing principles and existing frameworks to ensure that AI is being used responsibly. There will no doubt be tensions within organisations about the risk-reward trade-off for AI's implementation given it requires significant resources to execute effectively. Insurers need to ensure that AI projects are aligned with their strategic vision and supported with a comprehensive data strategy (Balasubramanian et al., 2021). Furthermore, insurers need to recognise that investment in supporting technology and human resources will be critical to overcome any limitation (Balasubramanian et al., 2021; McKinsey & Company, 2022). Finally, insurers need to acknowledge that mistakes will happen and that proactive engagement with customers and regulators will help build trust and improve AI implementation.

AI's Future & Next Steps

AI has the capacity to be transformative to all aspects of the life insurance industry, with the greatest potential in product design and distribution. However, AI's adoption could be stymied by unknown risks and a lack of consumer trust. Organisations cannot afford to wait for an industry specific AI regulation before launching their AI strategy. In the interim, insurers should look to the numerous consumer protections that could be used as a benchmark for internal AI governance, allowing the benefits of the technology to be captured ahead of the competition. This is critical given the increasing number of Fintech companies within Australia that will compete for market share of insurance offerings (KPMG, 2022b).

It is also imperative that the industry proactively engages regulators to influence and design an AI regulatory framework specific to life insurers. Regulators have already signalled their desire within group insurance about the need for innovation to drive better consumer outcomes in addition to establishing 'Innovation Hubs' to test AI against current regulatory frameworks (ASIC, 2023a; ASIC, 2023b). Insurers are in a prime position to instil good internal AI governance and influence future industry specific regulations. This will work to promote consumer trust and enhance organisational outcomes to continue protecting Australian's future livelihood and wellbeing.

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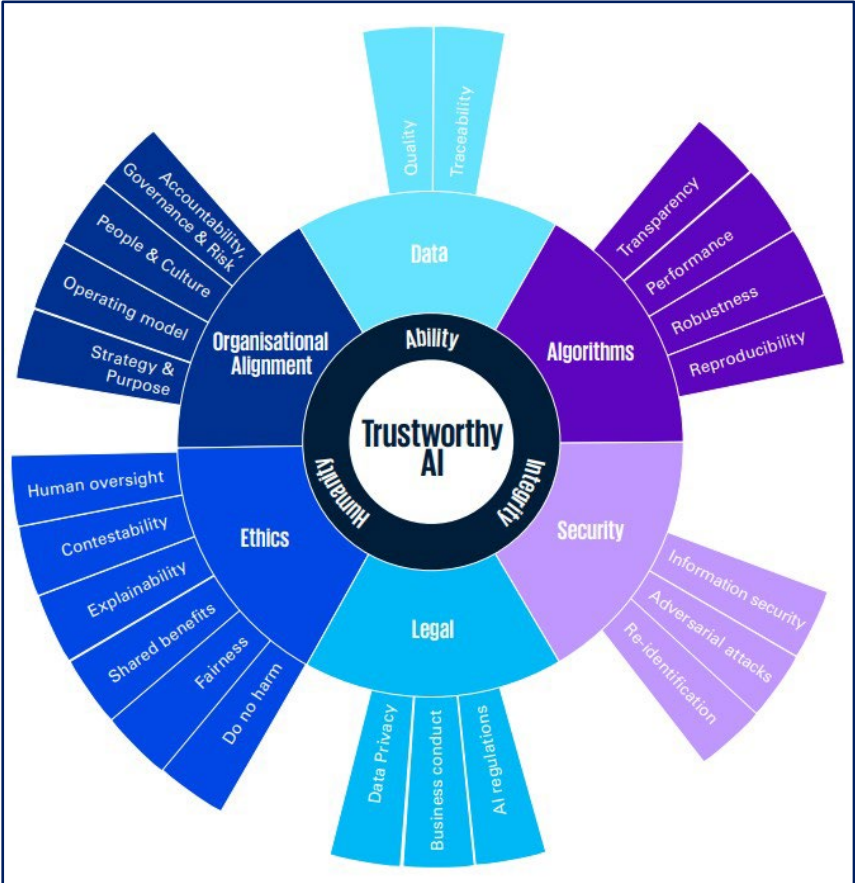
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Appendix List

Appendix 1 — Artificial Intelligence 'Trust Governance Model'

(Gillespie et al., 2020)