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How will "Insure Tec" shape the future of the Life industry?

Artificial intelligence and robotic process automation have become an integral part of manufacturing automobiles and other consumer products.

A recent announcement that UTS Advanced Analytics Institute is collaborating with a major player in the Australian life industry* to harness advances in machine learning shows that it has the potential to also become a significant driver of change in many different areas of life insurance.

What do you see as the future of "insure tec" applications developing over the next 10 years in the life industry? Your answer should include:

- The role of data analytics and the specific challenges of analytics in the life insurance context.
- Where will "insure tec" applications be turning up and what benefits will they bring?
- What social and commercial challenges are there to realising the benefits of these technologies for the industry's customers?

***Reference article:**

CeBIT Australia, 'AI the future of insurance and underwriting....', 16 May 2018

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Technology feeds on itself. Technology makes more technology possible.

Alvin Toffler

The best way to predict the future is to create it

Peter Drucker

Introduction

The Life Industry is experiencing almost unprecedented challenges. Premiums across the industry are increasing while at the same time margins are shrinking [1]. Here in Australia, negative perceptions about the industry are being reinforced by the media coverage of the current *Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry* [2]. In the face of these challenges one solution is to invest in InsureTech.

InsureTech (or "Insure Tech") is the use of new, emerging technologies to revolutionise or revitalise the insurance industry. Across the world many are taking advantage of emerging technologies such as big data, artificial Intelligence and blockchain. One estimate is that there are currently more the 1,500 InsureTech startups [3]. Existing insurance companies are also embracing InsureTech. ANZ-One Path has partnered with the UTS Advanced Analytics Institute (AAI) to take advantage of the latest AI machine learning [4].

So what is the future of InsureTech? Historically, attempts to predict the future tend be grossly inaccurate. We tend to focus on the sensational rather than the mundane - such as flying cars, space travel or sentient robots rather than computers or communication. Yet the seemingly mundane can have much more impact on the world – who could have foreseen the tectonic shifts in society due to social media and mobile telephones?

By limiting our extrapolations to 10 years, we are presented with a much more feasible endeavour. A useful exercise is to first look back ten years and see if we can ascertain patterns that we might then be able to project into the future.

In 2008 the iPhone 3G was released. 2008 also saw the launch of the Apple App Store, and in 2010 the introduction of Siri, the iPhone virtual assistant. Siri was significant as it was the public's first experience of a virtual assistant powered by machine learning, and it demonstrated the potential of an effective, natural language alternative to the usual touch-screen interface.

Listed below is a timeline of virtual assistants:

- Apple Siri (2010)
- Amazon Alexa (2014)
- Microsoft Cortana (2014)
- Google Assistant (2016)
- Google Duplex (2018)

In its first public demonstration, Google Duplex contacted a hair salon and in real time, negotiated a hair dressing appointment. It was able to carry out natural conversations, speak with a flawless imitation of a human voice, which included human-like intonations and use of filler words like "hmm" and "uh". Journalists were amazed and remarked that it "spoke like a human" [5].

In a period of just eight years, virtual assistants powered by machine learning have evolved from a gimmick to the point that an AI can act and sound like a real human being. If we have reached this point within eight years, how far will machine learning progress by 2028? In light of this, a recent article stated: "There is no way possible that we will not have a general conversational AI in the next 10 years that can speak to any human in any language about every possible topic" [6].

InsureTech and data analytics

Historically, the Life Industry has relied on data analytics. In fact, data analytics has been used in life insurance for 300 years [7]. The sources of data available for actuaries has grown from the traditional mortality tables to the overwhelming torrent of information contained within Big Data. The issue is, how to make effective use all this information? Any analytical model will only be as good as the quality (and quantity) of the information it is based on.

While quantum computing may eventually provide the brute computational power to analyse extreme quantities of data, for our ten year look into the future we will confine ourselves to existing technologies. For this, InsureTech may provide a solution through the development of time-saving algorithms, which will improve themselves over time with machine learning. Data will be sifted by specialised algorithms, and the remaining useful information will be used to create sophisticated, elaborated actuarial models. The more data, the more variables can be accounted for resulting in a more accurate model with a corresponding reduction in risk.

The challenges of data analytics in life insurance

In recent years the public has become increasingly wary of the collection, use and misuse of personal data. In the United States, Congressional investigations into Facebook and the attention on social media have created a hostile environment toward the collection of more data. Massive security breaches have resulted in the theft of millions of individual's personal details.

To overcome this the Life Industry will need to address the following points:

- how data will be collected
- how data will be used
- how data will be protected

The first two points may be resolved by insurance companies committing to a policy of being upfront and transparent. As to the third point, one technology that may greatly assist protecting sensitive data is blockchain. The use of blockchain may even result in situation where data can be kept secure and encrypted while still being able to be used in computations [8].

At this point in time there are very real limits to machine learning. Early adopters of InsureTech will have to invest substantial time and money before the benefits outweigh the costs. Eventually, InsureTech will result in the automation of many mundane and repetitive processes. This will free up human resources which can be shifted from processing and administration to areas which can benefit from human strengths such as creativity and the building relationships. People will still be needed as a back-up; within our projected 10 year timeline it seems unlikely that machines will have learnt to decipher every doctor's deliberately bad handwriting [9] .

As nations around the world become increasingly multi-ethnic, accents and varying levels of verbal skills may be a challenge to for our emerging InsureTech; an interim stage where the Life Industry will need to retain the majority of front office staff. However as machine learning progressed, by 2028 the majority of verbal and written communication will be managed by AI.

InsureTech applications in the Life Industry

Management of Statutory Reserves

Globally, the Life Industry has been attempting to move away from government-mandated, formula-based reserving to principle-based reserving. InsureTech applications may result in a more dynamic and effective means of managing these reserves. As most governments are concerned with appropriate, prudent management of statutory reserves, the administration of these statutory reserves by an impartial, logical and practical AI may be allowed, especially if the algorithms are available to be examined and approved by an appropriate regulatory body such as APRA.

Underwriting and Claims

Setting up a new policy is often long and drawn out process. Similarly, the process for assessing and accepting a claim can also be potentially a distressingly lengthy ordeal. Unless you are a "clean skin" (a term whose days are numbered as we develop a deeper understanding of risk), the process of requesting medical reports, weighing one expert's opinion against another, gathering financial information and finally assessing the information can be extremely longwinded. However, in the future the process may be largely automated with appropriately developed apps.

Whether delivered verbally via a natural language AI, or digitally through a downloadable app, the underwriting and assessment process can be streamlined and tailored to the individual, based on their answers [4]. Requests for relevant reports and documents can be automatically generated, and depending on the adoption of reciprocal technology by medical providers and financial institutions, may be instantly delivered to the assessor.

Other benefits of InsureTech

The adoption of InsureTech may have additional benefits to those already discussed:

- A perception of fairness due to AI's impartiality
- Reduction or elimination of human error
- Reduction of elimination of risk/fraud
- Reduction in staff numbers

Risk management is an essential part of the Life Industry. It therefore follows that the ability to reduce the number of people involved (without affecting productivity) would see a commensurate reduction in errors and fraud.

Some people may find speaking with AI to be easier than with real people, as an AI will not argue and always remain polite and professional, as remarked in a recent trial of Google Duplex [5]. It has also been noted that many 'Millennials' prefer to send a text or email, rather than make a phone call [10]. For them, an insurance company that can do all its business via an app or via a natural language AI would be an appealing choice.

Many of the telephone calls currently taken by Life Industry companies are for the basic tasks or inquiries: Is my policy in force? What does my policy cover? Can I change my address? A natural language virtual assistant with sufficient machine learning is perfectly suited for this type of task. This will free up the human resources to deal with more complex or demanding interactions, such as complaints. Or for building relationships with financial advisers or helping older customers who may object to "talking to a machine."

Social Challenges

The actuarial use of Big Data and machine learning to create accurate risk models may result in undesired pushback from customers. In particular, it may become apparent there are strong correlations between particular risk profiles and various social or ethnic groups.

Customer will need to be educated on how risk is assessed, and the benefits of disclosing information. One approach might follow the example of how insurance companies distinguished between smokers and non-smokers, by introducing a 'non-smoker discount' for customers who declared their non-smoker status, while smokers would remain on the standard rate.

For example, the initial underwriting may be based on standard information that customers already provide. From this an appropriate risk profile is developed and an offer made. The customer is then given the option to provide further, more sensitive information, with the guarantee that while their premium will not be increased, it may be decreased. And by using blockchain technology, the customer may even be able to retain ownership of this data. The information might then be deleted (or made effectively unreadable) once the assessment is completed [8].

- Perceived discrimination
- Older customers may have difficulty in adopting
- The danger is that we will end up in a bureaucratic dystopia
- Dangers – there is a growing anti-science movement in society. While discrimination is the basis of insurance, there are segments of society that are campaigning against all forms of discrimination.

But what about employees? This may end up being in the realm of how companies seek to differentiate from one another. Some companies may publicise how InsureTech automation allows them to cut costs and reduce errors, resulting in cheaper premiums. Other companies may take the opposite approach, and publicise their human resources, emphasising the warmth of real human communication – that it takes a human to understand a human. When you call us, you are speaking with a person. The warmth of human interaction versus cost-saving automation.

Conclusion

We can see that while there are numerous challenges to overcome, the potential benefits of InsureTech are impossible to ignore. While early adopters may have to carry more of the initial development costs, companies that delay will run the risk of becoming precariously uncompetitive. There will be fundamental changes. Insurance companies will need to restructure. The necessary technology will need to be developed or acquired. Human resources will shift away from monotonous, repetitive, back office tasks as InsureTech develops. Even the number of staff in front office roles will eventually reduce, and the few that remain will be customer service specialists, ready to step in on the rare occasion when the AI flounders, or to handle a complaint or a caller wants to speak to a real person.

There are challenges to be overcome. In the current spotlight the gathering and use of information is seen as problematic. But as we have seen, current technologies such as blockchain may restore public confidence in this area. However, if the public are educated, the data is collected and used in as transparent a way as possible, most of the barriers can be overcome.

InsureTech apps will have a large impact on data analytics and the modelling of risk profiles. The variables involved in an individual developing a claimable condition are myriad, but they are finite. Looking past 2028, the rise of InsureTech taking full advantage of Big Data, Quantum Computing and sophisticated AI may result in a situation where nearly all medical conditions can be predicted with an almost certain level of accuracy.

Still, risk may never be completely eliminated. Even if every biological factor is identified and tracked, and inputted into a Quantum Computer powered algorithm, there will always be external factors that may be impossible to ever truly quantify. At one level, exposure to environmental factors such as carcinogens, and at the other accidents caused by unpredictable random events.

What does this all mean? It means that insurance will move from assessing risk based on broad, gross trends across large population groups, sex, age, medical history, to a more specific, bespoke insurance tailored to the individual. Insurance will become more agile and proactive, rapidly responding to changes and development in medicine and technology.

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The 2019 ALUCA TurksLegal Scholarship will be launched and applications available in July 2019.

Further information, please refer to either the TurksLegal and ALUCA websites.