

Economic Insights

Underwriting excellence for the future: machine intelligence will see higher success rate in a post-COVID 19 era

Key takeaways

- Accelerated digitalisation and consumer data availability in a post-COVID-19 era can generate large amounts of data to train MI models.
- This will support excellence in insurer underwriting in the future.
- To date deployment of MI-techniques has been low.
- More investment in data gathering and engineering is needed
- Potentially, MI algorithms could help life insurers develop continuous underwriting capabilities.
- MI could also help insurers build better predictive models and early warning systems to mitigate the effects of climate events.

About Economic Insights

Analysis of key economic developments and their implications for the global re/insurance industry.

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We welcome your feedback. For any comments or questions, please contact: institute@swissre.com

In a nutshell

Accelerated digitalisation and associated large volumes of consumer data in the post COVID-19 era could facilitate greater success of MI projects. To date the adoption rate has been low, with over 95% failure due to lack of high-quality training data. The rise in online purchasing could manifest in MI opportunities for insurers to strengthen underwriting and predictive modelling.

One outcome of the COVID-19 pandemic has been an acceleration of the shift of daily-life transactions, including consumption, to digital. There was a marked increase in digital purchases as a consequence of the lockdown restrictions imposed curtail virus spread in early 2020. For example, one survey showed that online purchases in most product categories rose had risen by 6% to 10% across different countries by June last year from the start of the outbreak.¹ And our latest consumer surveys show COVID-19 has been a catalyst for greater uptake of online insurance among consumers in many parts of Asia. The findings also show consumers' preferred features of online insurance products.² The rise in online purchasing is generating large volumes of new digital data about consumer behaviours and lifestyles. Using latest machine intelligence (MI)³ techniques, insurers could potentially process this data to better service customer needs and underwriting excellence.

Expectations are for a strong gain in global spending on artificial intelligence systems in the coming years, up 23% on a compound annual growth basis between 2019-2023.⁴ To date, the adoption of MI pilot projects has been low. Cross-industry studies show that more than 95% of projects fail, mainly due to lack of high-quality training data.⁵ There also needs to be more investment in data engineering, to avoid duplication of MI-functionality within an enterprise setting. A centralised and streamlined data ingestion and curation capability can generate sizable returns on investment (see Figure 1).

MI-technologies could generate opportunities for insurers to strengthen their underwriting capabilities. The more diverse data sets now available online can enrich training of MI-models, for example to improve exception-handling capabilities.⁶ This is where the exclusion terms of an insurance contract can be adapted to align with a policyholders' changing life circumstances. In the case of life insurance, this can facilitate continuous underwriting rather than

¹ *COVID-19 and E-commerce*, UNCTAD, October 2020. The survey covers 1819 respondents in Brazil, China, Germany, Italy, Republic of Korea, Russia, South Africa, Switzerland and Turkey

² *Going digital: insights to optimise online insurance in Asia*, Swiss Re Institute, November 2020, [Swiss Re COVID-19 Consumer Survey: Financial anxiety, demand for insurance products accelerates across APAC](#), Swiss Re, April 2020.

³ MI is the application of mathematical models and algorithms that enable machines (eg. computers) to learn from data to make predictions without being explicitly programmed to do so.

⁴ *Worldwide Spending on AI Systems Will Be Nearly USD 98 Billion in 2023*, IDC, September 2019.

⁵ *Artificial Intelligence and Machine Learning Projects Are Obstructed by Data Issues*, Dimensional Research, May 2019.

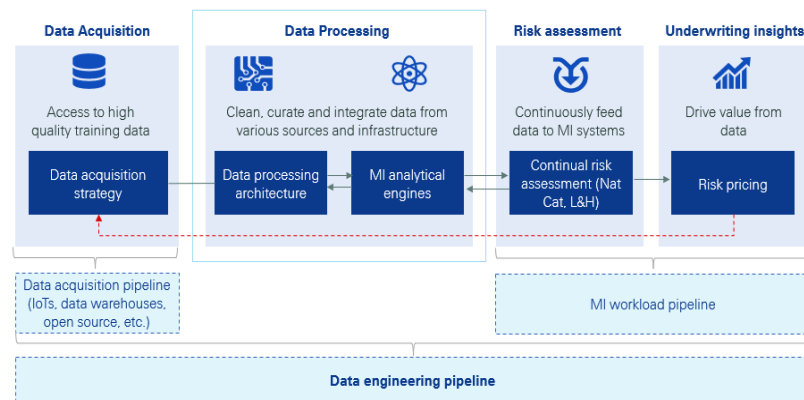
⁶ Exception-handling refers to the capacity to handle extreme or unknown scenarios such as COVID -19.

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the traditional at-time-of-sale approach. The latter is based past morbidity and behavioural data, and does not capture current-day changes in customer life circumstances. The huge volumes of consumer data available online are a window to such changes. Life insurers can access and process this data using MI algorithms to offer continuous underwriting services, whereby policy terms are dynamically adjusted based on customer behavior patterns, and suggested personalised actions can drive healthy behaviour. For example, in 2018, life insurer John Hancock added fitness tracking to all policies. These "interactive" policies collect health data from wearable devices and policyholders can earn discounts and rewards for hitting exercise targets.⁷

Figure 1
MI-data engineering schematic



Source: Swiss Re Institute

The spread of digital technologies is also an opportunity to strengthen global resilience against natural catastrophe risk. Wider acceptance of standardised data-formats for claims and exposures, and also for opensource information exchange can help improve predictive analysis and risk modelling capabilities. For example, US-based Terra Seismic has developed opensource MI-algorithms that use live streaming data from satellite images and atmospheric sensors that, it says, can predict earthquakes anywhere in the world.⁸ MI-systems can also be deployed to reduce carbon emissions. For instance, using sensing devices and algorithms to gather and analyse data, MI can forecast the supply and demand of power, improve the usage/scheduling of supply of renewable energies according to need, and run predictive maintenance programmes. This would support transition a low-carbon economy. As per the Global Commission on Adaptation estimates, every dollar invested in building climate resilience could result in USD 2-10 in net economic benefits.⁹

⁷ John Hancock adds fitness tracking to all policies, BBC News, 20 September 2018.

⁸ See "Terra Seismic: Harnessing Big Data to predict earthquakes", bernardmarr.com, 2020.

⁹ U Volz, "Investing in a Green Recovery", September 2020.

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