

# Big data and AI: risks and opportunities for insurers

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Big data and artificial intelligence are sweeping through the European insurance industry, with insurers facing competitive pressure to adopt innovative techniques. In response, regulators such as EIOPA are highlighting risks arising from big data and AI, and the critical role of good governance frameworks in mitigating them.<sup>1</sup>

## What are big data and AI?

The huge quantity of data that is now generated, stored and analysed by insurers is known as big data. Big data comes from both traditional and non-traditional sources (e.g. meta data, or unstructured data like text, images, and speech), and enables insurers to make more accurate predictions that can be more frequently updated. The insights from big data are often unlocked through AI. AI refers to a group of powerful models—e.g. machine learning—which generate highly accurate predictions.

## How are big data and AI used by insurers?

The combination of big data and AI enables insurers to better understand their customers. Big data and AI are used to make communications more effective through greater personalisation. The cost of claims management can be reduced through chatbots.

Fraud detection can also be made more accurate. However, two of the most impactful uses of big data and AI relate to pricing.

First, **more accurate risk-based pricing**, through more data on each customer's level of risk. This leads to a reduced level of cross-subsidy from low-risk customers, who benefit, to high-risk customers, who will pay more. One example is the greater use of usage-based pricing through telematics data—for example, some health insurance products use data from wearable devices to inform pricing. More accurate risk-based pricing may be efficient but may challenge traditional definitions of fairness.

Second, **more advanced price optimisation**, through more data on each customer's willingness to pay (or propensity to renew). This enables insurers to generate higher margins on customers who are less likely to churn. Customers who switch are likely to benefit, whereas customers who are loyal or inert are likely to pay a higher price.

## What are the risks for insurers?

The use of big data and AI creates regulatory and conduct risk for insurers. Arguably these risks are not new for insurers, but the application of big data and AI makes them more acute:

- discrimination on legally protected characteristics (e.g. gender). This could be due to third-party data, or the incorporation of historical bias into AI;
- inability to explain which factors are driving pricing to senior managers, consumers and regulators (i.e. the black box problem);
- poor outcomes for certain customer segments, such as vulnerable customers (e.g. if AI identifies them as less likely to churn);
- exclusion of high-risk customers from insurance (e.g. those with chronic health conditions);
- violation of privacy regulation (e.g. GDPR).

Lastly, consumers and regulators may view the use of new data sources as unfair. As stated by EIOPA:

The potential mismatch between consumer's expectations and the actual practices could have a negative impact on consumer's trust, which could eventually become a challenge to the stability of the insurance sector.

## How can insurers mitigate these risks?

In our experience, firms can successfully mitigate these risks through the application of frameworks to ensure good governance, pricing and protection of vulnerable customers.<sup>2</sup> The monitoring of consumer outcomes, and continual evolution of business practices, helps senior management move towards more sustainable business models.

The Oxera framework is used as a tool by senior decision-makers in financial services to understand the impact of big data and AI on their business model and consumers.<sup>3</sup> It represents a fundamental change in how boards operate, placing the focus on measuring and assessing customer outcomes using data science, behavioural economics and business model analysis.

<sup>1</sup> EIOPA (2019), '[Big data analytics in motor and health insurance: a thematic review](#)'.

<sup>2</sup> EIOPA (2019), '[Framework for assessing conduct risk through the product lifecycle](#)'.

<sup>3</sup> Oxera (2019), '[Fair ground: a practical framework for assessing fairness](#)', Agenda, March.