

Benno Keller, Special Advisor on Digital and Innovation, The Geneva Association

Advances in big data analytics, artificial intelligence and the Internet of Things are transforming the insurance industry and the role that data plays in insurance. New sources of digital data reveal information about behaviours and lifestyle habits that allow insurers to assess individual risks much better than before. The emergence of big data, however, raises several concerns regarding privacy, personalisation of insurance and competition, which require intricate and complex value judgements. The report aims to contribute to an informed and fact-based regulatory debate on access to and use of data in insurance.

LARGE BENEFITS...

Digitisation and the application of big data analytics have the potential to considerably reduce the cost of insurance through the automation of processes along the entire insurance value chain. They could reduce informational asymmetries, a key driver of inefficiency in insurance. Moreover, they allow for new usage-based insurance propositions and coverage for risks that so far have been considered uninsurable.

Great societal benefits can ensue from better data and increased potential to reduce risks. Big data facilitates new approaches to encourage prudent behaviour. More and better data also allows for early intervention and risk prevention based on predictive analytics. Ultimately, these technologies allow the role of insurance to evolve from pure risk protection towards predicting and preventing risks.

... BUT AT WHAT COST?

These benefits do not come without a cost, however. Several concerns have been voiced by regulators, consumer groups and industry representatives.

Concerns about privacy and data protection refer to questions surrounding the appropriate use of personal data. Privacy is concerned with the consequences of using personal data of individuals or groups of individuals.

Concerns about individualisation of insurance consider the implications of personalised risk assessment and pricing on policyholders. For example, greater differentiation of premium rates may imply that high risks can no longer afford insurance.

Finally, **concerns about competition** refer to the implications of the 'big data revolution' for an innovative marketplace that benefits consumers.

Such concerns are not new, and policymakers around the world have developed approaches to deal with each of these issues. However, they are likely to become more acute in the era of big data.

TRADE-OFFS

These concerns give rise to complex trade-offs which require intricate value judgements by consumers, firms, policymakers and regulators alike. Finding an appropriate balance is of fundamental importance, as insufficient privacy protection will harm consumers and erode trust, while overly strict regulation will hinder society from reaping the benefits of better data.

Given that the trade-offs are highly context-specific, there is no easy 'one-size-fits-all' solution. Rather, insurers must assess implications of the uses of personal data on a case-by-case basis. For policymakers and regulators, the challenge is to establish a flexible regulatory framework that facilitates the finding of an appropriate balance.

Furthermore, the future industry structure will critically depend on who has access to data. It is questionable if competition policy alone will suffice to ensure a competitive marketplace in the long term.

The paper assesses the key benefits and concerns of different uses of personal data in insurance, and develops five potential future scenarios to assess the consequences of different policy choices regarding privacy and access to data. Table 1 provides an overview of the scenarios.

TABLE 1: OVERVIEW OF POTENTIAL FUTURE SCENARIOS

Scenario	Description	Role of insurers
Scenario 1: The digital society 	<p>This scenario is characterised by free flow and open access to data. Insurance and technology companies have equal access to a broad range of data and can use it without restrictions.</p>	Digital insurers
Scenario 2a: Insurance at two speeds 	<p>In this scenario, insurance companies are prevented from access to or use of enhanced data to which technology companies have access. Those who do have access to data can use it without restrictions. In a sub-scenario, only a few insurers have access to data through exclusive cooperation agreements with technology companies, but other insurers do not.</p>	<ul style="list-style-type: none"> • Insurers exist as pure risk carriers or are driven out of the market, or exist as traditional insurers for customers not willing to share data • Insurers may coexist with technology companies, depending on their speed of learning
Scenario 2b: Champions league 		<ul style="list-style-type: none"> • Large insurers exist as digital insurers • Small insurers are driven out of the market or exist as traditional insurers for customers not willing to share data
Scenario 3a: Avoid discrimination 	<p>In this scenario, regulators intervene to protect certain privacy values. In one sub-scenario, regulators try to prevent discrimination at all cost. In another sub-scenario, regulators aim to avoid intrusiveness. In a third scenario, regulators apply a zero-tolerance approach to the risk of abuse in using personal data.</p>	Insurers engage in digital monitoring for prediction and prevention of risks
Scenario 3b: Avoid intrusiveness 		Insurers use broad range of online media data for risk assessment and selection
Scenario 3c: Avoid risk of abuse 		See scenario 4
Scenario 4: Digital backlash 	<p>In this scenario, we assume that increasingly restrictive regulation prevents established insurers and new market players from the use of enhanced data in insurance.</p>	Traditional insurers
Scenario 5: A tale of trust 	<p>In this scenario, people are no longer willing to share their private data such as health-related information with technology companies in general or social networks in particular. Insurance companies can act as a 'safe harbour', but face similar conditions to the rest of the industry with regard to accessing data.</p>	Digital insurers and trusted data managers

Impact on competition	Impact on informational asymmetries	Impact on consumers	Impact on welfare	Public policy issues / concerns
Enhanced competition	Significantly reduced if not eliminated	<ul style="list-style-type: none"> • Lower prices on average • Enhanced and more tailored products • Increased premium difference between low and high risks • Shift of consumer surplus to firms if consumers do not have access to risk insights, and competition is weak • Consumers not willing to share data may face unfavourable conditions 	Large welfare gains through risk and cost reductions	<ul style="list-style-type: none"> • Discrimination • Intrusiveness • Violation of contextual integrity • Affordability for high risks
Reduced competition if traditional insurers are driven out of the market	Enhanced informational asymmetries (at least temporarily) if traditional insurers coexist with technology companies	<ul style="list-style-type: none"> • Enhanced and more tailored products for individuals willing to share data • Increased premium difference between low and high risks • Shift of consumer surplus to firms if consumers do not have access to risk insights, and competition is weak • Consumers not willing to share data may face unfavourable conditions 	Ambiguous welfare effects	<ul style="list-style-type: none"> • Affordability for high risks <p>If traditional insurers are driven out of the market:</p> <ul style="list-style-type: none"> • Discrimination • Intrusiveness • Violation of contextual integrity
Reduced competition if small insurers are driven out of the market	See scenario 2a	See scenario 2a	See scenario 2a	See scenario 2a
Competition mainly from collectors of Internet of Things data (car manufacturers, providers of smart home devices, providers of wearables)	Significant reduction or elimination of informational asymmetries in business lines that lend themselves to digital monitoring	<ul style="list-style-type: none"> • Enhanced and tailored products • Increased premium difference between low and high risks • Consumers not willing to share data may face unfavourable conditions 	Considerable risk reduction for risks that lend themselves for digital monitoring	<ul style="list-style-type: none"> • Intrusiveness • Affordability for high risks
Competition mainly from collectors of online media data ('Big Tech')	Reduction of informational asymmetries	<ul style="list-style-type: none"> • Enhanced and tailored products • Increased premium difference between low and high risks • Consumers not willing to share data may face unfavourable conditions 	Welfare gains from increased accuracy of risk assessments	<ul style="list-style-type: none"> • Discrimination • Violation of contextual integrity • Affordability for high risks
See scenario 4	See scenario 4	See scenario 4	See scenario 4	See scenario 4
Reduced competition by eliminating threat of market entry	Increased informational asymmetries if consumers have access to enhanced insights	<ul style="list-style-type: none"> • Persistence of high risks • High cost of insurance • No innovation 	No significant welfare gains, potential welfare loss due to increased informational asymmetries	Maximum protection of privacy of individuals
Potential reduction of competition if only large insurers can establish themselves as trusted data managers	Significantly reduced if not eliminated	<ul style="list-style-type: none"> • Lower prices on average • Enhanced and more tailored products • Increased premium difference between low and high risks • Shift of consumer surplus to firms if consumers do not have access to risk insights, and competition is weak • Consumers not willing to share data may face unfavourable conditions 	Large welfare gains through risk and cost reductions	<ul style="list-style-type: none"> • Discrimination • Intrusiveness • Affordability for high risks

NO TRUST, NO BENEFITS?

The scenarios demonstrate the importance of building trust to enhance consumers' willingness to share their personal data. Without consumers' willingness to share data with insurers, we will inevitably end up in 'Insurance at two speeds' or 'Digital backlash' scenarios, which offer reduced levels of competition, welfare and innovation. The need to earn consumers' trust may offer an alternative scenario for insurers to establish themselves as trusted data managers (see the 'A tale of trust' scenario).

Furthermore, the scenarios highlight the importance of regulation, in particular policies regarding access to and use of personal data. These policies have to strike a difficult balance between ensuring privacy and promoting competition, innovation and welfare.

CONCLUSIONS

New business models based on the enhanced use of data have great potential benefits for insurance by enhancing the efficiency of insurance markets, promoting risk reduction and mitigation, and by enhancing consumer choice and insurance coverage.

These benefits do not come without a cost, however, and there are complex trade-offs involved in the enhanced use of personal information. There is no easy, 'one-size-fits-all' approach to address the trade-offs involved in new business models. Rather, new business models need to be analysed on a case-by-case basis.

