

# Responsible Use of Data in the Digital Age

## Customer expectations and insurer responses



**Issue brief**

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# Responsible Use of Data in the Digital Age

## Customer expectations and insurer responses

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## The Geneva Association

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# 1. Executive summary

Advancements in technology have opened up exciting new possibilities in data collection, analysis and usage. Recent developments in data availability, data analytics, artificial intelligence (AI) and computing power have created the potential for customer risk profiles to be more detailed and nuanced than ever before. This presents both opportunities and challenges for insurers and their customers.

More granular data can improve risk assessment and risk management. This may increase the availability of and access to insurance, especially for underserved customer segments with difficult-to-assess risk profiles. The 'data revolution' can also promote the affordability of insurance, on the back of much-enhanced loss prevention that is facilitated by devices and wearables. In addition, it can benefit customers' financial well-being by preventing losses which would otherwise remain uninsured. Based on advancements in data granularity, insurers can also offer more adequate and tailored coverage, avoiding both underinsurance and overinsurance. Finally, those with risk-conscious behaviours can receive fairer treatment, for example through premium discounts and by gaining greater insight into their health, leading to better overall population health.

**Increased data granularity can enhance insurance availability and access, and allow insurers to offer more adequate and tailored coverage.**

At the same time, customers with a riskier profile (i.e. those with higher loss expectations) face an increased likelihood of being priced out of affordable insurance. The ubiquity of data can also lead to a higher potential for differentiation on the basis of factors seemingly unrelated to insurance (e.g. credit scores), which is often perceived as unfair. Given the sharp reduction in the size of risk pools used in setting premiums, personalisation may ultimately translate into greater price instability for customers, potentially reducing the appeal of insurance. Moreover, reducing a risk cohort to a 'segment of one' challenges the core principle of insurance, which relies on the pooling of risks and premiums.

As opposed to unlawful discrimination, the concept of fairness is much broader and more difficult to define. On the one hand, laws and regulations address fairness in specific situations and attribute a legal use. Customers, on the other hand, more commonly consider it in a broader sense. It is in general subjective, based on individual, societal and cultural factors.

**However, personalisation may lead to customers with riskier profiles being priced out of affordable insurance.**

For insurers, striking a balance between varying perceptions of fairness and the objective benefits of increased data usage will therefore be key. In doing so, insurers can embed strong governance processes for data collection and usage into daily operations to ensure responsible use, paired with transparent communication towards customers. Such robust processes are a prerequisite to customer trust in the digital age as well as an important determinant of customer readiness to share data with their insurers.

## For insurers, striking a balance between the objective benefits of increased data usage and responsible conduct will be key.

Building on the in-depth expert and executive interviews conducted as part of this research, we have identified several essential elements for insurers to foster customer confidence:

- Data must be stored safely and protected against third-party attacks;
- The use of data must be robust to errors, outliers and changes in data quality;
- Model outcomes used for risk assessments, predictions and other material decisions such as claims management must be in line with what is culturally and societally accepted as fair;
- Decision processes, models and their outcomes must not obstruct customer understanding of the risk drivers;
- Insurers need to communicate transparently about the processes and governance behind the collection, storage, handling and use of data.

When a risk can be influenced by a change in behaviour, this should also be communicated to the customer. If a particular behaviour leads to a higher or lower premium, this should be explained as well. The customer can then decide whether or not a change in behaviour is warranted. In addition, the insurer can support with managing the risk, for example with preventive services.

Based on our research findings, we propose five key recommendations to ensure the responsible use of data in insurance as well as better alignment with customer expectations:

1. In insurance-related processes, guidelines and regulations, insurers, policymakers and regulators should differentiate between data collection and data usage. The collection of as much data as possible is needed to test for the risk of bias or discrimination. Unsuitable variables should be excluded from further use.
2. The responsible use of data and associated guardrails have to be defined and implemented by insurers before new data applications and models go live. This should be outlined at a strategic level and translated into operations.
3. A flexible and principles-based governance process should be implemented to ensure defined, fair outcomes despite the heterogeneity of cases and applications. All stakeholders along the value chain should be integrated. While the common denominator of all cases is a fair outcome, the process itself can vary. The principles must therefore focus on the outcome rather than the mechanisms behind it.
4. Insurers should implement a holistic framework for the responsible use of data based on data security, robust data usage, reasonable model outcomes, clear decision processes and models, and transparent and proactive communication.
5. To better understand societal perceptions of fairness, regulators and insurers should establish a dialogue with external stakeholders. This could be achieved through an independent consumer panel or via a governance committee consisting of both internal and external stakeholders, for example media, consumer influencers and distribution channel partners.





## 2. Introduction

This report covers the responsible use of data in private insurance markets where insurers extend offers to potential clients based on risk profiling and the requested coverage. Prices are set to cover the expected costs from that risk in a competitive setting.

With that in mind, the first aim of the report is to foster understanding of the interplay between the traditional risk assessment model of insurance and the opportunities and challenges that big data and personalisation present to customers and their insurers. Drawing on several in-depth expert interviews, we then discuss best practices of private insurers beyond pure regulatory compliance, and considerations around the use of data. Finally, the report provides recommendations for insurers and regulators.

### 2.1 The rise of personalisation in insurance

Consultancy reports, insurtechs, regulators<sup>1</sup> and international organisations<sup>2</sup> have highlighted the use of as much data as possible in insurance, which feeds into the launch of AI-driven products that personalise insurance pricing, coverage and services.

The personalisation of risk profiling and estimation of the corresponding costs of risks are at the very heart of private insurance. Digitalisation, however, is allowing insurers to obtain ever more granular, nuanced and dynamic risk profiles. New digital technologies, AI algorithms as well as quantum leaps in data availability and computational power are transforming what data can be collected and how information can be distilled from it.

**Private health insurance, telematics-driven insurance and usage-based insurance products increasingly use data from wearables and sensors to create individual risk scores and offer lower premiums to customers.**

Private health insurance, for example, increasingly uses data from wearables and mobile phones to create individual risk scores and activity programmes. Telematics-driven insurance is also a growing business. Based on data collected from sensors and mobile phones, individuals' driving behaviour is analysed and proposals for risk reductions are made. As risk reduction, quantified through a personal score, lowers the cost of the risk for both the insurer and the insured, a lower premium

<sup>1</sup> EIOPA 2019.

<sup>2</sup> OECD 2020.

can be offered to the customer. COVID-19 has further boosted the demand for personalised propositions such as usage-based insurance (UBI) products,<sup>3</sup> e.g. motor insurance based on personal driving behaviour and the number of miles driven. Premiums for such products can be more adequate than traditional insurance products as they more accurately reflect the individual risk of having a claim.

These shifts do not signal the end of the traditional insurance business model, but rather strengthen its core principle of adequate risk coverage. 'Perfect data and personalisation' may lead to perfect knowledge of the probability of a claim. It does not, however, lead to any foresight of whether there will actually be a claim.<sup>4</sup> Individuals, therefore, still need protection.

Based on new data analytics, the costs of covering individual risks can be more accurately estimated. This, however, may make insurance unaffordable for some people who, as members of broader risk pools, currently benefit from premiums that do not cover the true cost of their risk. A study from the U.K. shows<sup>5</sup> that most consumers support this shift away from risk spreading (Figure 1).<sup>6</sup>

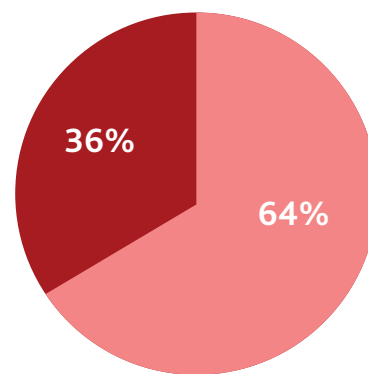
More generally, the personalisation of insurance can be manifested in:

- The premium, based on the individual risk profile and the associated cost of a risk<sup>7</sup>
- The premium, based on the willingness to pay<sup>8</sup>
- Additional insurance or non-insurance-related services, based on individual behavioural data.<sup>9</sup>

A common example of personalised pricing based on risk would be safer drivers who are rewarded with lower premiums.<sup>10</sup>

Contrary to personalised pricing, a willingness to pay refers to the personal utility of the cover for the insured and their propensity to pay for it. While price differentiation based on a willingness to pay is often perfectly legal and widely accepted, it can be perceived as unfair by certain customers.

**Figure 1: Consumer perceptions of individual risk pricing**



Please choose the statement which best matches your personal opinion

- Everyone should pay for their insurance exactly according to their level of risk even if it makes insurance unaffordable for some people
- The cost of insurance should be spread across customers so that insurance isn't unaffordable for anyone

Source: BritainThinks and the Association of British Insurers<sup>11</sup>

Based on more granular risk profiling, additional services can be offered and provided to consumers. These can include alerting first aid in case of a car accident based on telematics shock data, health and wellness coaching based on wearable data, and theft prevention with the use of smart home devices. Greater transparency on how these factors contribute to the resultant premium is also likely to create and foster more trust with customers.

## 2.2 The concepts of fairness and non-discrimination

The much-expanded scope for more granular risk profiling and personalisation must be applied in a fair and non-discriminatory manner. Discrimination can be defined as the unfavourable treatment of a person based on association with a specific social group and the characteristics representing it. Examples of protected characteristics are gender, age, disability, ethnicity, religious or political

3 MarketsandMarkets 2021.

4 Dolman, Lazar et al. 2020.

5 BritainThinks and the Association of British Insurers 2020.

6 More people expect to be in the 'good segment' than the actual case may be. For that reason, the acceptance rate may be lower.

7 Thouvenin et al. 2019.

8 Ibid.

9 The Geneva Association 2021. Authors: Isabelle Flückiger and Matteo Carbone.

10 The use of certain variables such as sleep patterns could lead to a perception of unfair treatment. For example, healthcare workers doing night shifts or parents with young children would have a higher risk assigned due to their 'abnormal' sleeping patterns, which could trigger a higher risk premium.

11 BritainThinks and the Association of British Insurers 2020.

affiliation, and relationship or pregnancy status. Many countries have non-discrimination regulations in place that prohibit discrimination based on some of these protected characteristics, and where the corresponding differentiation is considered unlawful discrimination. Differentiation based on individual (modifiable) behaviour, however, is widely accepted (see Figure 1). A common example is higher premiums for risky drivers.<sup>12</sup>

Fairness is a much broader concept than non-discrimination. It is defined as treating people in a way that is right or reasonable.<sup>13</sup> The notion of fairness is highly subjective as it is based on individual, societal and cultural backgrounds and corresponding moral standards. Therefore, perceptions of fairness often differ between individuals and communities.<sup>14,15</sup>

**For insurers, it is important that their services are perceived as fair for the sake of brand, reputation and building customer trust.**

For insurers, adherence to regulatory and legal standards is obviously a must. But going one step further and ensuring that services are perceived as fair – for the sake of brand, reputation and trust building – can be complex, not least because associated legal requirements may not exist or are difficult to interpret (see Table 1).

**Table 1: Types of discrimination and fairness**

Discrimination	Differentiation
<p><b>Discrimination</b> is the unlawful differential treatment of a person based on belonging to a specific social group. Often, the notion is further refined to better address cases where the differential treatment is based on factually neutral traits that are correlated with membership to the group.</p> <p>Groups are protected against differential treatment in specific contexts, e.g. while differential treatment in court based on health status is discriminatory, it is not in the context of private health insurance.</p>	<p><b>Differentiation</b> is any (lawful) differential treatment.</p>
<p><b>Example:</b> Motor insurance that is cheaper for women if all else, apart from gender and corresponding characteristics, is equal.</p>	<p><b>Example:</b> An increased insurance premium for risky drivers and a premium reduction for safe drivers.</p>
Fairness	
<p><b>Fairness</b> is the quality of treating people equally or in a way that is right or reasonable. It is based on individual, societal and cultural backgrounds and corresponding moral standards.</p>	
<p><b>Example:</b> A visually impaired employee getting an extra-large monitor to work on enlarged text documents to enable them to perform the same work as non-impaired people.</p>	

Source: *The Geneva Association*

12 Meyers and Van Hoyweghen 2018.

13 <https://dictionary.cambridge.org/dictionary/english/fairness>

14 Cevolini and Esposito 2020.

15 Castelnova 2021.



## 3. Personalised insurance coverage: Boon or bane?

When exploring the opportunities and challenges around personalisation, the criteria of assessment must be defined first. Our starting point is the core value proposition of insurance: ensuring the financial well-being of individuals, households and businesses. As such, key assessment criteria are the accessibility, affordability and adequacy of risk protection.

Fairness is another crucial criterion. While accessibility, affordability and adequacy can be assessed economically, fairness is subjective by nature and depends on cultural, financial and societal factors.

### 3.1 Opportunities

#### **Improved accessibility through expanded insurability**

Individual data provide new knowledge about customers, their needs and their risks, allowing insurers to identify existing or emerging protection gaps and make insurance coverage more accessible to customers. This is particularly true for underserved or unserved customers with difficult-to-assess risk profiles. In the past, for example, it was nearly impossible for people with severe health problems to obtain life insurance coverage. If they could, premiums were high as a result of both an elevated loss expectation and underlying uncertainty. The availability of more nuanced and granular individual health data has allowed insurers to more accurately determine the associated risk factors and the costs of covering the risks, resulting in more people with access to insurance coverage they can afford. Improved data availability also enables risk-mitigating actions, such as physical activity levels and special or healthy diets, to be taken into account. This form of personalisation can help those who were previously excluded get access to coverage more easily.

#### **Improved affordability through loss prevention**

The use of individual data can help prevent losses in the first place. Data from devices and wearables, e.g. from water leakage detection sensors, can help avert incidents and reduce risks. The associated underwriting losses and claims settlement costs are reduced, translating into a lower risk premium and more affordable insurance coverage.

**The use of individual data can help prevent losses in the first place.**

### Improved financial well-being by preventing uninsured losses

In addition, the insured part of a loss typically only relates to a portion of the total damage. In the case of water leakage, the cumbersome work of cleaning up and disposing of damaged furniture or machines is often not covered or only partially covered. These extra costs, to be incurred by the insured, are also reduced, in turn improving the financial (and mental) well-being of the customer.

### Improved adequacy of coverage through personalised offers

Insurance coverage can be personalised to individual needs. Examples include specific short-term insurance, individualised dashboards that provide quick access to risk information and 24/7 access to insurance services, all of which enhance the adequacy of the individual insurance coverage. As such, personalised insurance can address both underinsurance and overinsurance.

### Increased fairness through individualised risk premium adjustments

In actuarial risk pricing, premium pools are constructed (in the simplest case 'homogenous' classes), based on certain assumptions and corresponding variables.<sup>16</sup> In addition, bonus-malus systems based on individual claims records are often applied within risk classes, resulting in an individualised estimation of the insurance coverage cost.

Rebitschek et al. recently conducted a study of consumer acceptance of individualised premiums in Germany.<sup>17</sup> Participants were presented with a bonus system where 'good' behaviour was incentivised by a lower premium and a malus system in which 'bad' behaviour was penalised by a higher premium. About one third of the surveyed consumers stated they would participate in a personalised insurance model, with a higher acceptance rate for the bonus model than the malus approach. Similar results can be found in the U.K.<sup>18,19</sup> and France.<sup>20</sup>

These findings will certainly differ by country, similar to the perception of fairness.<sup>21</sup> In general, however, those surveyed considered it fair to integrate particular individual risk factors such as 'texting while driving' – a criminal behaviour in many jurisdictions – and pass on additional risk costs to the insured.

## 3.2 Challenges

At the same time, these opportunities typically come with a flip side, such as potential exclusion from affordable insurance coverage, an increased likelihood of price instability for customers, and higher prices for digitally disadvantaged customers.<sup>22</sup>

**Disadvantages of insurance personalisation include potential exclusion from affordable insurance coverage, price instability and higher prices for digitally disadvantaged customers.**

### Increased likelihood of pricing 'riskier' customers out of affordable insurance

An example of restricted access to insurance coverage is the use of credit scores, which are used as good predictors of future claims in car insurance pricing in the U.S.<sup>23</sup> Factors including the customer's payment history, credit utilisation and credit history account for about 80% of a person's credit score.<sup>24</sup> Such factors, while statistically related to the insured loss, are unrelated to insurance and may exclude a person from insurance coverage. Such situations must be checked for potential discrimination of a protected class. Moreover, it is important to analyse whether the treatment is fair.

The most discussed challenge in academic literature concerns the perception of fairness in individual and granular risk profiling. Kiviat provides an example of these challenges in a study looking at consumer perception of fairness around the use of data in car insurance and lending decisions (see Figures 2 and 3, respectively).<sup>25</sup> The use of certain data, such as accident history and the number of speeding tickets for car insurance, or punctual rent payments and credit scores for lending decisions, was generally considered to be fair. Other kinds of data, such as race/ethnicity and grocery store purchases, though statistically relevant, were not.

16 Barry and Charpentier 2020.

17 Rebitschek et al. 2021.

18 Michael et al. 2013.

19 Störmer 2015.

20 Ibid.

21 Dolman, Appleton et al. 2020.

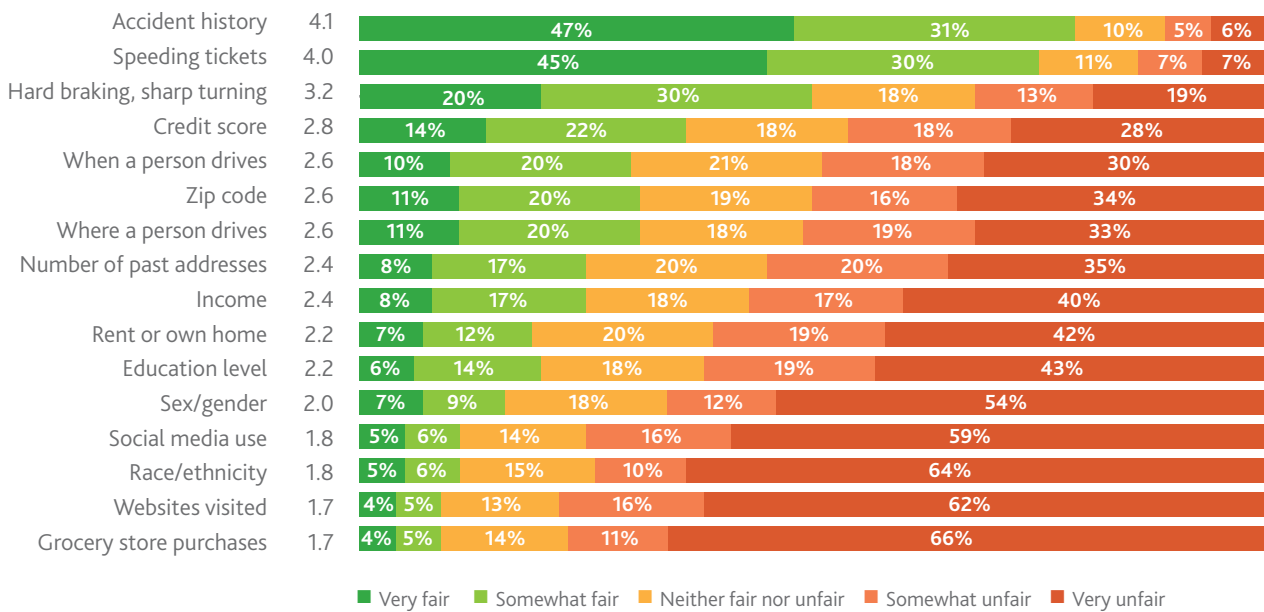
22 McFall et al. 2020.

23 Kiviat 2019.

24 Egan 2021.

25 Kiviat 2021.

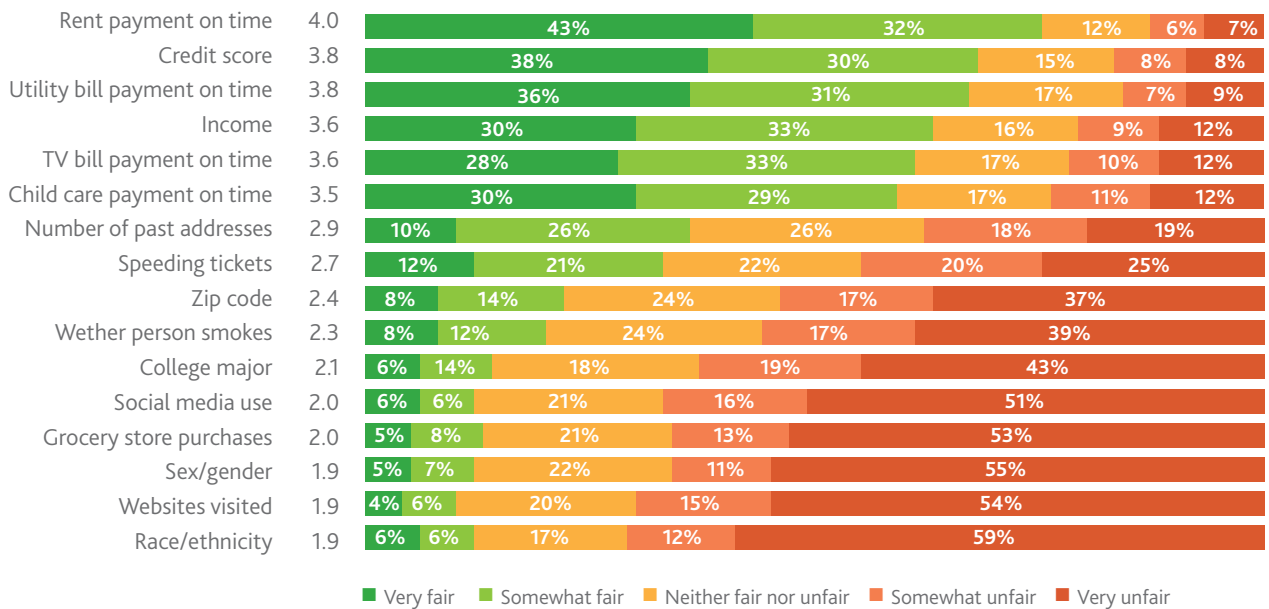
**Figure 2: How Americans rate the fairness of companies using various types of data in car insurance decisions**



Notes: Survey conducted by YouGov in 2019. N = 1,095. Values weighted to be nationally representative.

Source: Kiviat 2021

**Figure 3: How Americans rate the fairness of companies using various types of data in lending decisions**



Notes: Survey conducted by YouGov in 2019. N = 1,095. Values weighted to be nationally representative.

Source: Kiviat 2021

The use of certain data may be considered fair in one context but not in another. For example, the majority do not consider using data on speeding tickets for lending decisions as fair (Figure 3). The relationship between the behavioural data used and the service provided is important. This is why the use of variables that describe how a person drives – e.g. accident history, number of speeding tickets, and incidence of hard braking and sharp turning – are deemed to be widely acceptable in car insurance decisions, whereas social media use, shopping habits and other such behaviours are considered irrelevant.

The study also reveals that when people assume the data provides information about a person's moral character, it can legitimise its use. Under this assumption, people perceive it fair that insinuations made from the data can also be applied to other contexts. For example, punctual utility bill payment was found to imply that a person would be more reliable in paying back a loan.<sup>26</sup>

Similar to car insurance, individualisation in life and health insurance has been common for decades. Coverage is traditionally based on individual health status, with the data collected by a questionnaire and sometimes accompanied by a medical check.

Rebitschek et al. also analysed consumer acceptance of individualised health insurance in their study.<sup>27</sup> One third of those surveyed said they would participate in an insurance model incorporating individual behaviour scores. While the majority (58%) consider smoking status a justified variable in such a model, other variables, such as walking distance, weight, hours of sleep and alcohol consumption, were deemed less acceptable.

The latter information is often collected through wearables and devices in behaviour-based incentivisation programmes in the health insurance industry. These programmes aim to incentivise personal behavioural changes for better health. Potential concerns include the assumption that lifestyle is a choice consisting of isolated events that can be controlled by the individual, without material interdependencies on the environment.<sup>28</sup> Further, the accuracy of the data collected may not always be confirmed as wearable devices can be fallible and do

not always give an accurate measure of what is actually happening.<sup>29</sup>

Another identified concern in the context of personalised insurance is the fair use of context-based data. Without context, data can be easily misinterpreted.<sup>30</sup> For instance, a non-smoker who occasionally buys cigarettes for other family members could be identified as a casual smoker based on shopping data.<sup>31</sup>

## Without context, data can be easily misinterpreted.

### Increased likelihood of price variability for customers, potentially leading to reduced appeal of insurance

In addition to potential exclusion or unaffordability, the personalisation of insurance raises the challenge of price variability as insurance is fundamentally about risk smoothing. As personalisation reduces the size of premium pools, it may lead to greater pricing variability over time. Such a scenario could ultimately undermine the very essence of why people buy insurance: to smooth the cost of loss.<sup>32</sup>

### Increased likelihood of higher prices for the 'digitally disadvantaged/data poor'

Open data regimes that use opt-in as a core feature, for example, increase the likelihood of higher prices for the 'digitally disadvantaged/data poor' even if they are considered low risk.<sup>33</sup>

These examples and reflections show that the level of personalisation in insurance needs to be carefully considered to provide not only the most affordable and suitable coverage for individuals and communities, but also coverage that is considered fair from the consumer's perspective (see Figure 4).

26 Kiviat 2021.

27 Rebitschek et al. 2021.

28 Prainsack and Van Hoyweghen 2020.

29 Dolman, Lazar et al. 2020.

30 Swiss Re 2020.

31 Ibid.



32 CII 2016.

33 The traditional way of collecting customer data has practical limits. Questions have to be easy to understand and answer for the general population. With the advent of open data regimes, some of these obstacles may be reduced or removed, with customers able to, with the press of a button, share extensive data with an insurer. See Bednarz et al. 2022.





**Figure 4: Opportunities and challenges around personalisation in insurance**

 Opportunities	 Challenges
■ Improved accessibility through expanded insurability (primarily for underserved people)	■ Increased likelihood of 'riskier' customers being priced out of affordable insurance
■ Improved affordability through loss prevention, facilitated by devices and wearables	■ Increased likelihood of price variability for customers, potentially leading to reduced appeal of insurance
■ Improved financial well-being by preventing uninsured losses	■ Increased likelihood of higher prices for the 'digitally disadvantaged / data poor'
■ Improved adequacy of cover (avoidance of over or underinsurance)	
■ Increased fairness towards those with risk-conscious behaviours	

Source: The Geneva Association





## 4. Best practices for the responsible use of data by insurers

This section is based on insights from in-depth interviews we conducted with insurers and independent experts on both the current practices around data use within the insurance industry and the direction in which developments are heading. These are summarised as approaches for best-practice solutions. As highlighted in the previous sections, it should be kept in mind that perceptions of fairness differ and are driven by various cultural and societal factors.

### 4.1 Collection and use of data

Since the practice of collecting and using new data beyond traditional purposes is still at an early stage, experiences are based on experimentation and single-use cases; learning is ongoing. In addition, when it comes to customer expectations around the collection and use of data, there are significant geographical differences.

In Asia, for example, perspectives are result- and value-driven: people judge the use of data more on the advantages and disadvantages to the person who provides it. In Europe, by contrast, customers prioritise individual freedom and non-surveillance – the individual is at the centre and should therefore be in control of their personal data and information. North Americans occupy a middle ground. On the one hand, they are innovation-focussed, with heavy admiration for ‘big tech’, results and value. On the other hand, they place a premium on individual freedom and avoiding structural biases and discrimination, exercising caution as the use of data evolves.

**Customer expectations around data collection and use show significant geographical differences.**

The majority of insurers still use traditional data, i.e. data provided by a questionnaire, for pricing. When the information is considered reliable, e.g. telematics data, it is used for individual risk profiling.

At the moment, insurers rarely incorporate data from client engagement programmes collected through devices, for example from health-coaching programmes. Three main challenges were perceived by the interviewees for this study, particularly in health insurance:

1. Data does not necessarily reflect the person's actual lifestyle;
2. Wearable devices do not always produce accurate data, leading to false risk profiles and the associated costs of insurance coverage;
3. Information asymmetries could disadvantage the insurer if the customer omits information or makes false statements.

Today's underwriting models already take many risk factors into account. Car insurance, for example, assesses the type of car, age of the customer, location, claims history and more. Greater use of data can enhance other business processes such as customer management. Data can predict early contract cancellation, and behavioural data from telematics and wearables can enhance and speed up claims management or provide assistance services after an accident.

In the context of data management, the distinction between collection and use is important.

Best practice is to first collect extensive data and, before use, carefully assess the data for potential discrimination, unfairness and benefits in the various use cases and for different stakeholders. The effectiveness of this approach, in terms of ensuring fairness in risk profiling, is supported by academic research.<sup>34</sup>

Robust governance processes need to be established in order to ensure that such cases of data collection and use are evaluated individually. As each case is unique, there is no one-size-fits-all approach.

## 4.2 Data governance

Ensuring the responsible use of data is not a new issue for insurance companies. Such considerations are taken into account on a daily basis in underwriting and pricing, and integrated in frameworks and guidelines, actuarial professional standards and codes of conduct. However, the ways of obtaining and using data, and the frequency at which it is collected, varies between insurers.

The insurers interviewed stressed that the governance process and guidelines for responsible conduct in collecting customer data are always defined before the first algorithm goes live. In effect, the guardrails are set in advance. They have put in place an overarching data governance strategy, which encompasses collection,

quality (accuracy, completeness, appropriateness), use and safeguards.

### Defining a data strategy

Data strategy is at the core of any data governance framework. It is designed to provide transparency to customers and help them understand which data is being collected and for what purpose.

The strategy defines the data to be collected, how to assign it to a data dictionary, the expected quality of the data and, in the case of missing data, a data mobilisation plan. Part of the strategy also concerns when and what data should be deleted, e.g. based on the EU's General Data Protection Regulation (GDPR) or other standards.

The strategy differentiates between the collection of data and the purpose of use. Collected data is not necessarily used for insurance applications. Collected but unused data falls into two classes:

1. Data not suitable for use in applications
2. Data used to identify biases, discrimination or proxy data (one example being the 'gender' characteristic, which is needed to identify potential biases but not used for models or decision-making)<sup>35</sup>

The insurers interviewed for this report expressed high levels of awareness about the need for stringent guidelines on the responsible use of data and have established rigorous governance processes. Even though insurance-related regulations do not yet exist in many areas, all companies interviewed are attuned to the regulations, guidelines and best practices across industries – e.g. big tech, telecommunications and banking – as well as geographies.

Regional data guidelines often reflect the maturity of the corresponding insurance market. In Europe, the responsible use of data focusses on data privacy and is covered in multiple regulations, notably:

- GDPR
- The Insurance Distribution Directive
- The EU Commission proposal 'Laying Down Harmonised Rules on Artificial Intelligence'
- Solvency II.

These regulations are shaping insurers' internal guidelines. In addition, many insurers are taking part in working

<sup>34</sup> Lindholm et al. 2020.

<sup>35</sup> Ibid.

groups or pilot projects with regulators. The insights gained are integrated into the insurers' frameworks.

North American insurers are trying to find a balance between the regulatory approach in Europe and innovation-driven business models, as offered by tech companies. The state of California has, with the California Consumer Privacy Act (CCPA), developed a regulation similar to the GDPR.

### Refining governance processes

Governance processes around data and risk factors are not new. Actuarial practices globally have had such processes for a long time. Pricing, reserving and risk factors are continually reviewed and approved by existing risk committees. The assessment of potential bias and discrimination is applied in all actuarial processes.

More recently, companies have developed responsible AI frameworks, which are embedded across all levels and departments of the organisation. To address responsible data use and AI, organisations have formed AI panels and committees, some of which include external experts. Each algorithm and product for service must first be approved by the committee before it goes live.

### Governing applications

The interviewed insurance companies require that governance processes and responsibility requirements be defined in advance of any application or algorithm going live.

As each application is context-specific, the majority of the guidelines are principles-based, rather than rule-based, with requirements to identify, analyse and control potential discrimination and biases.

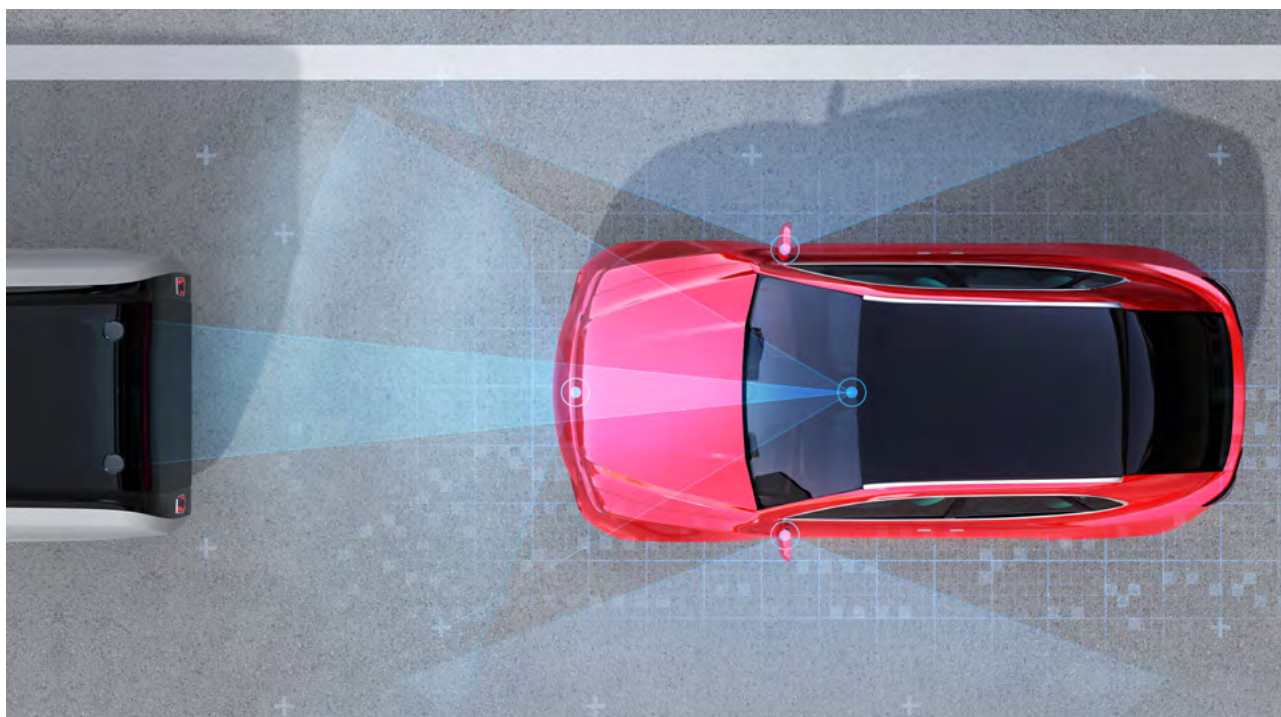
Assessing bias in data and models is connected with general risk assessments. Known biases regarding attributes such as gender, ethnicity, religion or surnames are tested during the model set-up and removed as appropriate in the final models. For this bias test, the corresponding attributes must be available. As religion, for example, is not usually recorded, religion-based bias cannot be tested. A lack of knowledge of the protected attribute may impede fairness and non-discrimination.

### Governing people and training

A priority for insurers is the education and training of their employees. This involves raising awareness of the fact that bias and discrimination can occur, sensitising employees to these issues and training them on how to identify and deal with them. AI process development has certain nuances which are inherently dependent on the developer's choices. AI engineers have to be trained with a standard set of ethical principles as well as an understanding that the profession embeds ethical choices into insurance products that can have considerable impact on the lives of customers.

## 4.3 A holistic framework for trust in the responsible use of data

For customers, trust in the responsible use of data is the most important element when sharing data and information. This trust can be achieved when the customer broadly understands not only what and how data drives decisions (e.g. premiums), but also that the data is used in a controlled way, safely stored and protected against third parties.



Insights shared by interviewees for this report helped shape a framework for the responsible use of data (see Figure 5), made up of the following elements:

- Data is stored safely and protected against third-party attacks;
- The use of data is robust<sup>36</sup> to errors, outliers and changes in data quality;
- Model outcomes used for risk assessments, predictions and other material decision-making are in line with what is culturally and societally accepted as fair;
- The decision process, model and outcome are conducive to the customer's ability to easily understand the risk drivers.

For these elements to be effectively put to use, transparent communication of the processes and governance behind the collection, storage, handling and use of data is required.

For example, when a risk can be influenced by a change in behaviour, this should be communicated to the customer. It should furthermore be explained why a particular behaviour leads to a higher or lower premium. The customer can then decide if a change in behaviour is warranted. The insurer can also provide support to manage the risk with preventive services.

In general, customers with a better understanding of insurance products and the factors that influence premiums and insurance coverage have fewer concerns about sharing their data. This highlights the importance of upfront and clear customer communication.

If the risk cannot be lowered by a change in behaviour, for example due to a medical precondition, the insurer should adequately communicate the relationship between the risk and premium to the customer.

**Figure 5: Four elements of trust in the responsible use of data**



Source: The Geneva Association

36 Robustness means that an algorithm or procedure is able to cope with errors, outliers and changes in data quality without a significant change of the outcome.



## 5. Conclusions and recommendations

Personalisation of insurance and the use of new and more data offers both advantages and disadvantages to consumers. How these advantages and disadvantages are perceived largely depends on country-specific social, cultural and legal conditions, in addition to differing perceptions among individuals.

As a result, there are no global standards and rules in this area. Compliance with regulations and non-discrimination legislation based on protected characteristics is a legal requirement, and it provides the foundation for more far-reaching approaches by insurers to ensure the responsible use of data.

Based on an in-depth literature review and a series of expert and executive interviews, The Geneva Association has developed five recommendations for the insurance industry to consider in its use of data and models:

### 1. Differentiate between data collection and data use

The collection of sensitive variables is needed to test for the risk of bias or discrimination. Without this information, it is very difficult to identify and mitigate unwanted biases during the different stages of the AI/machine learning pipeline. It is also the only way to reliably demonstrate to regulators and other stakeholders the absence of unwanted biases.

### 2. Define the responsible use of data first

The responsible use of data and associated guardrails must be defined and implemented by the insurer before its new data applications and models go live. Data use and guardrails should be outlined at a strategic level and translated into operations. They should ensure data privacy and put a particular emphasis on non-discrimination and fairness.

### 3. A principles-based governance process is needed to achieve fairness

A flexible and principles-based governance process should define the most appropriate fairness objective for every single application in the project planning phase. All stakeholders along the value chain as well as risk, compliance, IT and HR departments should be part of the process. Insurers should document the rationale.





#### 4. Implement a framework of trust

Insurers should implement a framework of trust with customers based on data security, the robust use of data, reasonable model outcomes, clear decision processes and models, and transparent and proactive communication with customers on actions around data.

#### 5. Engage in social debate about fairness and the acceptance of behavioural modifications

To better understand societal perceptions of fairness, regulators and insurers should establish a dialogue with external stakeholders. While such a dialogue on a societal level will take time, insurers could establish a panel with representatives of internal and external stakeholders to initiate discussions. One proposal would be to establish an independent consumer panel to understand customer perceptions. A more advanced approach would be a multi-stakeholder governance committee to evaluate customer outcomes based on a better understanding of the perception of fairness.

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Data-driven personalisation in insurance offers considerable advantages to customers, such as increased affordability, improved access and better personal well-being, due to enhanced loss prevention. It also presents a range of challenges, including the pricing out of customers with higher loss expectations and issues around data security and privacy. This issue brief examines how insurers can responsibly capitalise on the benefits of increased data availability to better serve their customers, without compromising on trust.

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