



# **INSURANCE REIMAGINED:**

Insurance in  
the Age of  
Data Analysis

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## 1

# DATA-DRIVEN INSURANCE

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**The digital transformation of the insurance industry is well underway as underwriters embrace increasingly data-driven, seamless and connected digital solutions to make the risk assessment and claims more accurate and efficient. In an industry that has seen little change in decades, the proliferation of data, enhanced connectivity and new technologies such as artificial intelligence (AI) are causing unprecedented disruption. This digitalisation offers opportunities to raise efficiency, redefine services, build better customer relations and tackle fraud, preparing insurance companies to face the new challenges and opportunities presented by developments such as the Internet of Things, machine learning and blockchain or distributed ledger technologies, which stand to benefit both the customer and provider. New technologies are even giving rise to a number of new products such as 'cyber insurance'.**

In this rapidly changing, data-driven landscape, it becomes possible to use data analytics to tailor the pricing of premiums to the individual and focus on risk prevention rather than merely risk management. Insurtechs — insurance technology startups — are driving change in the industry by redefining insurance offerings and delivery through digitised operations. Insurers will benefit from AI tools such as robotic process automation (RPA), which will allow them to make significant improvements to data processing capabilities, reducing or even eliminating the need for paperwork and brokers. Moreover, behavioural analysis tools will facilitate more accurate fraud detection and prevention. With lower operational costs and more efficient innovation capabilities than large established insurers with outdated legacy systems in place, these smaller companies are able to rapidly trial and bring to market new insurance offerings. For example, a number of insurtechs are offering usage-based and modular insurance options, giving customers the ability to reduce their premiums by adjusting their behaviour. Well-established insurers are recognising the benefits of partnering with insurtech startups in order to deliver differentiated offerings that they lack the capacity to develop themselves, often through open APIs.

Application programming interfaces (APIs) provide toolkits for developers to create new apps — or functionalities for existing apps — that leverage data to create wholly new offerings. These collaborations are likely to give rise to new insurance models and revenue streams, reduced operational costs and higher profitability. New models may include flexible coverage options, modular and micro insurance offerings and peer-to-peer insurance options.

Technology and data are not the only factors impacting the insurance industry. As in all other consumer industries, changing customer needs and expectations are driving rapid change. Millennials are now the largest generation in the US workforce and the largest market for insurance policies globally, making it essential that insurers understand their needs and expectations in order to cater to them successfully. Tech-savvy Millennial consumers expect convenient, personalised, multi-channel interactions that provide value and stellar customer service. Armed with smartphones that place a world of information at their fingertips, these consumers make a habit of shopping around for the best deal available, reading – and writing – reviews of services online. They increasingly demand transparency, hyper-convenience, personalised offerings and service, and continuous, multi-channel customer engagement, as this is what they have come to expect in other industries such as retail due to the data analytics and customer service standards set by e-commerce giants like Amazon.

Customer-centricity is at the heart of the new insurance model, with insurers embracing strategies that allow them to offer customers control, personalisation and convenience. Insurance traditionally involved numerous phone calls, emails, or even visiting a broker to obtain cover and access claim status details, resulting in a universally dreaded slow and painstaking process. In the new digital ecosystem, customers can now often complete the entire application process online — often through their smartphones, getting access to cover without ever speaking to a single consultant. A growing number of companies allow customers to verify information such as their identity by simply sending scanned documents or even selfies, offering far more convenient access to insurance cover while granting the customer far greater autonomy. New, lifestyle-focused customer engagement apps will change the way insurer-policyholder relationships work, allowing for far more seamless and personalised customer experiences. Customer service bots are becoming increasingly mainstream, allowing for more personalised and faster policy servicing and claims management. For example, virtual assistants may answer policyholders' queries and virtual assistants such as US insurer Lemonade's claims bot, Jim, can assess claims and automate payouts within seconds. Digital models and increased automation will render human intermediaries redundant, significantly improving profit margins.

## 2

# TELEMATICS AND USAGE-BASED INSURANCE

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## WHAT IS VEHICLE TELEMATICS?

Vehicle telematics integrates telecommunications and informatics into vehicles for the purposes of tracking vehicle performance and driving behaviour, as well as enabling predictive maintenance to prevent future breakdowns. In this context, telematics is what enables usage-based insurance by allowing insurers to directly monitor the policyholder's driving behaviour. Many telematics options today operate using a wireless connected device that plugs into a car's on-board diagnostics port — also known as the OBD II port — which is present in all vehicles manufactured since 1996. The OBD II port is an on-board computer that monitors the vehicle's mileage, speed, emissions, fuel efficiency and other data, and connects to the vehicle's Check Engine light. Other telematics options rely on smartphone applications or incorporate GPS devices.

## WHAT IS USAGE-BASED INSURANCE?

Traditionally, auto insurance premiums have been determined by the insured party's demographic and lifestyle information, and their driving record, i.e. the number of accidents and serious traffic violations on their record. Age, gender, address, mileage and vehicle usage frequency estimates and claims history are a few of the factors that are traditionally taken into account to estimate risk and calculate the individual's premium. While these considerations are backed by statistics, they only enable risk prediction in the broadest sense. With the proliferation of telematics and advanced analytics, insurers are able to create far more personalised risk profiles and tailor premiums accordingly, updating them in response to the insured party's driving behaviour.

Usage-based insurance is a new model of assessing risk based on data generated by individuals — such as driving behaviour measured by telematics — instead of risk being determined by broad demographic data. This enables insurers to offer customers far greater personalisation in terms of service and communications as well as individualised premiums based on factors such as how defensively they drive and how frequently they use their car. While the benefit for customers is clear, more accurate risk prediction also offers insurers a significant advantage in the form of reduced claim frequency.

US insurer Nationwide's SmartRide usage-based insurance model allows users to save up to 40% on their premium for safe driving. SmartRide relies on a telematic plug-in that monitors driving behaviour and its intuitive user interface app allows users to track their progress and access personalised feedback to help them improve their driving. SmartRide measures four factors to determine the user's driving score: miles driven, hard braking and acceleration, idle time, and nighttime driving.

In December 2016, US data analytics and risk assessment company Verisk Insurance Solutions partnered with Silicon Valley-based telematics service company Driveway Software to jointly launch a smartphone-based telematics product for auto companies, insurers and drivers. The platform combines the Driveway telematics smartphone app (for data collection) with data from Verisk's own telematics data offering, Verisk Data Exchange, in order to facilitate accurate driver scoring. Insurers that wish to offer their clients usage-based insurance that rewards safe driving can use Verisk's Data Exchange to do so. Driveway's telematics app uses patented technology to enable insurers to quantify and reward desired driving behaviour without requiring a plug-in device in the vehicle, allowing insurers to invite existing customers who are not leveraging vehicle connectivity to enjoy the benefits of telematics.

With the shift from traditional car ownership to car-sharing models, the popularity of connected cars has increased, and with it, the amount of data generated by cars. UK telematics service company Wejo seeks to use this data to garner meaningful insights for automotive manufacturers to improve smart mobility. It is working with insurers in the US to reduce claims costs for connected cars by using direct feeds from them to model risk.

The leading connected car and Insurtech platform in Latin America, Jooycar, designed an IoT-based tool at the end of 2017 that collects real-time information on a car's status, facilitating usage-based insurance policies. The device not only allows users to demonstrate a history of safe driving and responsible car usage but also enhances the driving experience with data-based insights. It consolidates data collected by an OBD II plugin with data gathered by a mobile app, to deliver highly accurate information about the driver and vehicle. This data includes real-time vehicle information, customised maintenance reporting and loss prevention tips, detailed driver risk assessment and scoring, driving patterns, route optimisation advice, geofencing alerts, and more. Through this offering, policyholders can save an average of 40% on their insurance expenditure.

US insurance company Progressive's Snapshot usage-based option evaluates policyholders' driving data gathered over a 30-day period to determine whether they qualify for a discount on their premium. After signing up, the company mails you a small device to plug into your OBD II port. The device tracks data including miles driven, time of day, hard-braking and hard-cornering incidents — but not speed. Based on safe driving behaviour and percentage of daytime driving hours (avoiding driving between 00h00 and 04h00), policyholders can save up to 30% on their policies.

South Africa's Naked Insurance allows its customers to pause their accident cover if they won't be driving their car — while remaining protected against theft, hail and other 'stationary risks'. It also offers a Giveback benefit, supporting positive change in South African communities. Launched in 2016 as a Hollard-backed car insurance startup, Naked Insurance takes a fixed portion of premiums to run the business, with the balance going into a pool to cover claims. At the end of each year, money left over in the claims pool goes to charities nominated by customers rather than towards company profits, meaning Naked's income doesn't depend on whether claims are paid or not. The use of AI-based algorithms also allows the startup to bring down the cost of insurance by removing the need for inefficient business processes such as call centres.

**The usage-based insurance market is projected to be worth USD \$95.81bn by 2025, at a compound annual growth rate (CAGR) of 18.95%.**

## 3

# HEALTH INSURANCE IN THE AGE OF TRACKING

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As in the case of vehicle insurance, health and life insurance premiums have traditionally been based on broad demographic statistics. Policy rates are typically informed by considerations such as the age, gender, medical history and career of the insured party, as well as whether they engage in risky activities such as rock climbing or behaviours such as smoking or frequent alcohol consumption. With the large quantities of data now available due to increased connectivity and the growing Internet of Things, insurers today can leverage tech-enabled data science to predict an individual's risk factors with far greater accuracy, allowing them to offer customers highly personalised premiums. Digitally consolidated health records and health tracking technologies such as fitness tracking wearables, as well as partnerships with fitness clubs and even grocery chains, give insurers a more holistic view of the customer's health and fitness while creating opportunities for incentives based on healthy behaviour.

Mobile health apps are growing in popularity as consumers become increasingly aware of the importance of physical activity and healthy habits. Some popular health tracking mobile apps include Fitbit, Apple Health, Strava and MyFitnessPal, which track activity levels by pairing with Bluetooth-enabled fitness wearable devices such as smart watches and chest straps (often used for swimming). These devices measure data such as steps taken, speed, distance covered, heart rate and elevation, generating estimates of calories burned during physical activity based on the individual's profile and basal metabolic rate (BMR). The apps also encourage users to track their meals, enabling them to track calorie consumption and gain insight into the nutritional breakdown of their food intake. Specialised apps that facilitate training for running, yoga and a plethora of other activities are taking off, as are relaxation and meditation apps such as Headspace and Calm, and even apps that help users to quit smoking. These apps all help to improve the user's health by giving them information about — and insight into — their habits and behaviour. They can also provide insurers with detailed information about their policyholders' health and allow them to make educated projections about their risk profile.

**The fitness app market is projected to be worth USD \$14.7bn by 2026.**



South African insurer Discovery's Vitality programme rewards policyholders for making choices that help them to live longer, healthier lives. The programme, which was first developed more than 20 years ago, has been hailed as an example of shared-value insurance that aims to prevent risk while rewarding risk reduction. Vitality is currently available in 15 countries around the world through a number of insurance partners, serving more than four million customers. The programme pairs technology with incentives and science to inform and reward customers for making healthier choices every day. Customers receive points for purchasing healthy foods, working out and receiving regular checkups, which translate into policy savings and rewards from a number of partners including fitness clubs, healthy gear and shopping and entertainment discounts. The insurer offers customers heavily discounted — or even free — fitness wearables to track their physical activity levels and earn points.

In late 2018, US-based insurance provider John Hancock announced that going forward, it would only sell Vitality-linked cover linked to Fitbit armbands or other fitness trackers, discontinuing traditional life insurance underwriting and converting existing life insurance policies to Vitality programmes. Its decision is well-founded; Vitality policyholders log almost twice as many daily steps as the average American and have tracked more than three million health activities for points.

US health insurance company Health Care Service Corporation (HCSC) offers wellness programmes including an online health assessment tool, smoking cessation support, weight-loss programmes and various fitness programmes, and offers an option to choose a high deductible plan to support decreased premium costs.

**The direct-to-consumer (D2D) DNA testing market is projected to be worth \$2.5 billion by 2024.**

## 4

# PRIVACY CONCERNS IN THE DATA ECONOMY

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**Data privacy is a growing concern in most industries, and insurance is no exception. In the wake of the Cambridge Analytica data scandal and numerous popular documentaries on the subject — which opened people’s eyes to the extent to which data is collected about them and how nefariously this data can be used — consumers are increasingly sceptical about companies that gather data about them. In this climate of distrust, many consumers want to know exactly what type of data is being collected about them, for how long, and with whom the company plans to share this data in future, as well as what purposes the data will be used for and what security measures will be in place to secure the data from cybercriminals.**

In the usage-based auto insurance industry, the monitoring required to create driver profiles requires constant tracking, which some consumers may find invasive. While some explicitly state that they do not collect location data, others, like US insurer Root, do. This is reportedly a dealbreaker for some consumers, according to research by Pew. While most consumers are willing to exchange a surprising amount of their personal data for greater personalisation, convenience or discounts, it seems that for many, geolocation data is simply too sensitive. [45% of consumers find sharing location data in exchange for discounted premiums an unacceptable tradeoff.] Insurers are attempting to reassure consumers by limiting the trial period in which their driving is monitored to a month or shorter and informing policyholders that they can opt out of tracking through their app once their profile has been created. However, this is not good enough for some consumers.

As usage-based insurance gains mainstream adoption, these consumers may face increasingly disproportionate premiums for refusing to give up their privacy. In some cases, the question of data privacy becomes even more fraught, as in the case of 'interactive healthcare policies' that mandate the sharing of health tracking data. For instance, John Hancock's announcement that going forward, it would only sell interactive policies means that all of its customers are required to share a minimum amount of fitness data with the company.

In this increasingly data-driven industry, insurers will need to ensure that they abide by ever more stringent data privacy regulations — such as Europe's 2016 General Data Protection Regulation (GDPR) — which are becoming more common as new concerns arise around data privacy and ownership. It will be equally important to offer customers transparency and assure them that their data is in good hands and will not be shared with third parties. Additionally, giving policyholders more control over their data, such as the option to 'be forgotten' by deleting their data after the initial trial period may make consumers feel more comfortable sharing their data, allowing forward-thinking insurers to differentiate themselves.

## 5

# BLOCKCHAIN AND INSURANCE

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**Distributed ledger technology — better known as blockchain — has been the subject of much hype of late, with experts predicting a plethora of ways that blockchain may disrupt just about every industry, and insurance is no exception. Due to its ability to facilitate secure data sharing and verification, blockchain could help solve some of the industry’s most pressing compliance, interoperability, and data security issues, as well as enable new patient-centric business models in the health insurance industry. As the healthcare ecosystem grows in complexity, so will the opportunities to deploy blockchain applications.**

The healthcare industry generates large quantities of complex, diverse and highly regulated data. While electronic medical records (EMRs) have traditionally sat at the epicentre of all this data, adoption of EMR systems has not been universal, and the efficiency and interoperability of such systems can be improved upon. Moreover, the industry is beginning to recognise that the data we traditionally think of as healthcare data — that is, a person’s medical record — is only one aspect of a person’s overall health profile. Their social, environmental and behavioural profile is just as important in determining which medical interventions will work best for them.

Healthcare providers are faced with a multifaceted challenge: how to consolidate all this complex data and securely make it available to stakeholders; how to give consumers oversight and control over how their data is used; and how to achieve all of this without running afoul of data privacy and security regulations. For the industry to meet this challenge, blockchain seems a promising solution for a number of reasons. In particular, it allows for secure and unalterable recordkeeping among various stakeholders, creating greater transparency and facilitating better inter-facility and stakeholder cooperation, as well as other benefits such as opening new payment avenues.

**The following are three ways in which blockchain technology could significantly support the healthcare industry:**

#### MEDICAL RECORDS:

When a medical record is generated and signed, it can be written to the blockchain, which will provide absolute proof and confidence that a medical record cannot be changed. The integrity of the medical record is ensured. The same concept can be applied to clinical trials. This also impacts legal cases where the integrity of the medical record is pivotal.

#### CONSENT MANAGEMENT:

In the current healthcare environment where every state has different privacy and consent regulations, blockchain could be used to record patient consent for purposes of data sharing. Any party seeking to exchange medical data about a patient could check the blockchain for permission to do so.

#### MICROPAYMENTS:

The idea that patients might be incented is gaining traction. If a patient follows a care plan, keeps their appointments and stays healthy, there might be rewards offered through the blockchain. Similarly, patients might be rewarded for contributing their data to clinical trials and clinical research using the same approach.



**BURSTIQ'S** blockchain-based platform helps healthcare companies to safely and securely manage massive amounts of patient data. Its technology enables the safekeeping, sale, sharing or licensing of data while maintaining strict compliance with HIPAA and GDPR rules. Because BurstIQ's platform includes complete and up-to-date information about patients' health and healthcare activity, it could help to root out abuse of opioids or other prescription drugs.



**FACTOM'S** blockchain-powered 'portable medical wallet' makes it easy to securely record and store a patient's medical records to improve treatment between various clinics and other healthcare providers, which is particularly useful in developing nations where patients often lack recorded medical histories. Factom's offering gives patients ownership of their own medical data and ensure its integrity, regardless of changing governments or healthcare environments.



**MEDICALCHAIN'S** blockchain maintains the integrity of health records while establishing a single point of truth. Doctors, hospitals, insurers and laboratories can all request patient information that has a record of origin and protects the patient's identity from outside sources. In May of 2018, Medicalchain announced the release of its telemedicine platform, MyClinic.com. MyClinic enables patients to consult with their doctors via video and pay for those consultations with 'MedTokens'.



**CORAL HEALTH** uses blockchain to accelerate the care process, automate administrative processes and improve health outcomes. By securely capturing patient information using distributed ledger technology, the company efficiently connects doctors, scientists, lab technicians and public health authorities. Coral Health also implements smart contracts between patients and healthcare professionals to ensure that data and treatments are accurately recorded and executed.



**SIMPLYVITAL HEALTH** is building infrastructure for value-based care, which it sees as the future of healthcare. Its modular, comprehensive 'ConnectedCare' programme allows providers to easily track patients across healthcare facilities and communicate with one another regarding the patient's care, facilitating more informed decision-making. It also provides near real-time cost estimates, allowing providers to manage towards savings.



**ROBOMED** combines AI and blockchain to offer patients a single point of care. The company deploys chatbots, wearable diagnostic tools and telemedicine sessions to gather patient data and share it with the patient's medical team. Robomed's Panacea platform engages patients in smart contracts that incentivise them and guide them on the path to better health.

These are just a few of the opportunities emerging in the insurance industry. To find out more about how this industry is transforming and how your company can take advantage of these shifts, contact Lacuna Innovation. Our innovation experts can help you to identify unmet consumer needs and opportunities and help you map a path to implementation.

## ABOUT LACUNA

Lacuna Innovation is a boutique consultancy that helps global organisations to sustainably innovate new products, services and business models by combining trend, insight and commercial expertise in one place. We identify new growth opportunities, immerse ourselves in markets and build in-house innovation capabilities to achieve lasting impact.

Harnessing an environment of tangible tech and creative collaborations, we can help you bring identified opportunities and concepts to life through experimentation and prototyping. With offices in Cape Town, Germany and Napal, we have global recognition, credibility and reach, which allows us to be at the forefront of Front-End Innovation (FEI).

We are innovation architects in the business of building tangible and sustainable futures. We work with companies to facilitate their innovation efforts, using our proprietary innovation methodology.

We are not a branding or advertising agency. We seek opportunities for our clients to ensure that they remain competitively innovative. We identify and monitor trends that impact our clients' businesses, and assist them in identifying innovation opportunities to be pursued through focused research, a series of workshops, and a unique understanding of the unmet needs of consumers. Our proactive approach to FEI allows us to move beyond concept development to developing Proof-of-Concept design, prototyping and ultimately, commercialisation.

**To find out how we can help you, reach us at [hello@the-lacuna.com](mailto:hello@the-lacuna.com)**

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