FUJITSU

White Paper
How Artificial Intelligence is making insurance work better for everyone

Lower costs.
Better experiences.
Proactive prevention of risk.

Content

A new era for insurance

As a heavily regulated, intensively bureaucratic sector – a business founded on caution – insurance has always been slow to adapt. But a confluence of historic challenges is forcing the industry to undergo arguably the most radical change in its history.

Fundamentally, insurance is a hedge against risk. Over the coming years, it will become a proactive exercise in preventing risk. 'Predict and prevent,' rather than 'replace and repair.'

As you'll see in this paper, the shift will be enabled by Artificial Intelligence (AI). It will be catalyzed by three interlinked challenges.

First, the 2008 financial crisis – compounded by the 2020 coronavirus crisis – put enormous pressure on insurers' balance sheets. It has become essential to operate on ever-tighter margins, relying on three fundamental levers for profit: minimizing operating costs, maximizing sales, and reducing claims.

Second, technological trends have shifted expectations around customer experience and product personalization. Digital self-service, instant quotes, dynamic pricing, and precisely tailored products are all part of a landscape that insurers have so far viewed from a distance.

Insurance has always been a data business. But the sector is falling behind in its ability to harness information, opening the door to existential competition from digital disrupters better able to meet customer expectations, in part because of earlier adoption of AI.

Third, unprecedented shifts in technology and the environment have left actuaries attempting to model risk with no historical data to ground them. Pricing the risks of a digital world equipped only with analog models.

AI is the key to overcoming all three challenges.

And it will happen quickly. As Peter Utzinger, Financial Services CTO, Fujitsu Global, said, "AI scales instantly, empowering companies to become immediately responsive," already making the technology "a major building block in the contemporary business architecture."

Indeed, Gartner reported in January 2019 that 37% of all organizations had already implemented some level of AI. From recent research into AI, carried out by independent research firm Forrester Consulting on a commission from Fujitsu, it was found that 86% of business leaders said they intended to invest in AI over the next 12 months.[1] 57% of finance and insurance leaders already have a formalized plan approved and backed by the board.[1]

At the time of writing, insurance is at an early stage of AI maturity. But its AI-empowered future is not far away. One where the fundamentals of the sector are entirely upended – and everybody is better off for it.

Adding brains to automation

Meeting the first challenge – improving carriers' operating ratio – is the clearest starting point for AI in insurance.

As a sector, insurance is heavily process oriented. It also still tends to rely on manual processes and cumbersome legacy systems. The relatively high labor costs that come with an over-dependence on outdated methods are a weight that businesses can ill-afford after the economic shock of 2008.

The imperative to make efficiency savings is even greater following the sheer volume of event and continuity claims that came with the coronavirus crisis of 2020, the aftermath of which will be felt for years to come.

Robotic Process Automation (RPA) – which has become common in the industry – goes some way to improving process efficiency. But AI is set to supercharge those savings – 35% of business leaders expect AI to increase employee productivity[1] – as well as curtailing losses from fraud.

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> **Peter Utzinger**
> Financial Services CTO, Fujitsu Global

1. Starting Today, AI Will Power Businesses Into The Future, a commissioned study conducted by Forrester Consulting on behalf of Fujitsu, May 2020.

Process automation, but smart

RPA is a relatively primitive automation system, operating on strict rules. If <this> then <that>. The efficiency savings of implementing RPA are significant, but largely equivalent to the savings you would make if humans could work without any breaks or sleep.

RPA is marginally faster than a highly efficient human that doesn't need to stop. But it's certainly no smarter. If RPA encounters an exception to its instructions, it has no option but to flag it for attention.

If premium reconciliation numbers are usually expected on Mondays, but arrive on a Tuesday, the RPA will simply send an alert equivalent to 'don't understand.'

By contrast, machine learning AI may flag the exception the first time, perhaps even the second. But once it recognizes that these are the numbers it was expecting – just on the wrong day – it will learn to look for reconciliation figures on every day of the week, without intervention.

This ability to learn enormously amplifies the cost reductions possible from process automation. While RPA yields roughly 20%, machine learning based Hyperautomation results in savings of approximately 60% – improving over time as the algorithm becomes adept at more complex processes.

In the diagram below, Hyperautomation is used to automate the entire customer journey from making a car insurance claim to receiving a replacement.

The efficiency savings from AI enriched process automation are potentially transformative in themselves. Indeed, the top three current uses for AI cited by surveyed finance and insurance leaders were improving efficiencies in IT operations (23%), improving efficiencies in business operations (19%), and improving business automation (19%).[2]

But the indirect benefits are arguably of even greater value. Having automated such routine tasks, humans are freed to focus on higher value labor such as sales and marketing, business development, and product innovation.

> "AI is already proving its abilities to fight fraud in the financial sector, where its aptitude for pattern recognition excels at identifying suspicious transaction sequences."

Intelligent fraud detection

The FBI estimates non-healthcare insurance fraud costs US insurers $40 billion per year – $400-$700 extra on annual premiums for the average American family. Insurance Europe estimates that European carriers lost €13 billion to insurance fraud in 2017.

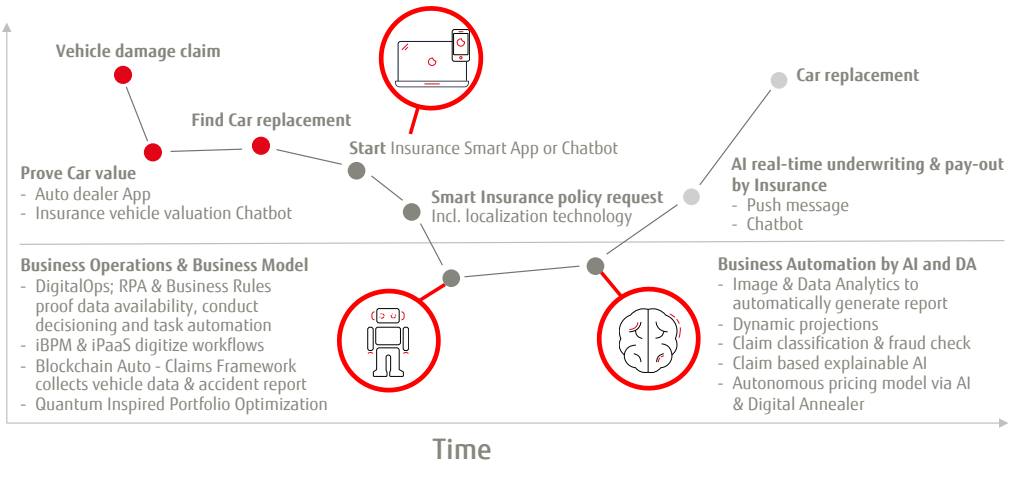
AI is already proving its abilities to fight fraud in the financial sector, where its aptitude for pattern recognition excels at identifying suspicious transaction sequences. In insurance, it is set to combine this capacity with the ability to integrate traditional structured data with unstructured data like images and social media.

For example, AI may flag a person submitting the same photo of a damaged roof two years in a row. Or it may identify a Flickr photo of someone skiing the day after they claimed for a broken leg. It could even reconstruct an auto-accident entirely from telematics data, to accurately verify – or disqualify – a claim.

It is simply uneconomic for human analysts to uncover examples like these at scale, making fraud an inevitable cost of business. With the help of AI, losses from fraud will be drastically reduced – in some cases eliminated.

Journey to Hyperautomation

Car Damage Claim



2. Ibid.

Transforming insurance

In parallel to these efficiency savings, AI will help insurers meet their second major challenge: retooling their organization for an agile era.

Customers have grown to expect fast, personalized, responsive policies – ideally delivered through self-service. Insurers have been slow to respond, risking displacement from tech companies better able to meet expectations. 41% of respondents have left an insurer because of poor experience. 20% would buy insurance from a Big Tech firm.

AI is the key to delivering excellent customer experience and personalized policies – maximizing sales potential in the process.

It's also the key to imbuing insurers with the agility required to keep pace with shifts in consumer expectations in an era of relentless change. Today personalization is the latest must-have, tomorrow it will be something else – it's important not to get left behind.

Accordingly, McKinsey estimates that sales and marketing will be the biggest value-add for AI to the insurance sector, principally in customer experience and product personalization. And 36% of business leaders expect AI to improve their customer experience.[3]

Frictionless customer experience

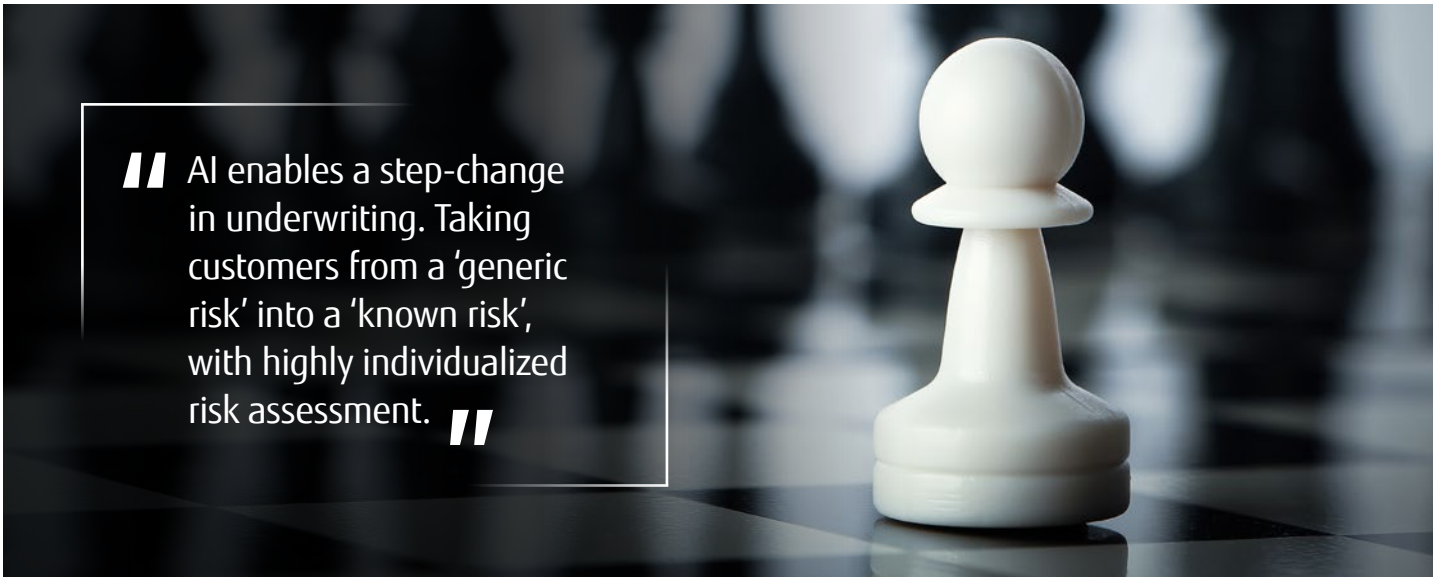
Until now, customers have been little shielded from the inherent complexity of insurance products – affording ample advantage to anyone who can make policy purchases and claims simpler.

Today, Natural Language Processing (NLP) chatbots are most visible as simple customer service tools, fielded to triage online requests before handing over to human agents. However, they are already beginning to serve a deeper purpose in insurance.

Lemonade is a U.S. insurer employing chatbots to guide customers through policy applications. In place of the usual convoluted form, customers are asked a series of questions – guided by their responses – that take them from enquiry to quote in just 90 seconds.

At the other end, Ant Financial – a subsidiary of Chinese internet giant Alibaba – is using AI to assess simple auto-insurance claims in just six seconds based on smartphone photos sent by the customer. By comparison, humans take an average of 6 minutes, 48 seconds, with the same information.

3. Starting Today, AI Will Power Businesses Into The Future, a commissioned study conducted by Forrester Consulting on behalf of Fujitsu, May 2020.



Aioi Nissay Dowa Insurance is going one step further, using Fujitsu AI image recognition and Visual Simultaneous Localization and Mapping (Visual-SLAM) technology to automatically generate accident reports from telematics recordings.

Customers are saved from the stress of reporting the incident themselves. Accident assessments are made more accurate – no longer based on the subjective accounts of shaken drivers. Claim times are projected to halve, when combined with the insurer's 'I'mZIDAN' chatbot.

Employing AI for purchases and claims like this offers two major advantages for carriers.

First, in making the process of buying a policy simpler, carriers may attract customers who would otherwise not have bought insurance at all. Customers discouraged by the complexity of typical policy forms.

Second, with simple queries fielded by AI, human agents should be easier to reach for complex negotiations and conflict resolution – with more time to focus on these more difficult service areas.

The result should be a greater retention of customers, no longer driven to disruptive competitors by outdated, frustrating experiences.

Personalized, responsive policies

AI enables a step-change in underwriting. Taking customers from a 'generic risk' into a 'known risk', with highly individualized risk assessment.

From the customer's perspective, this could result in lower policy prices, as it is determined they represent a lesser risk than their broader demographic. Equally, by more accurately evaluating a customer's potential risk, carriers should strike a better balance between premium prices and claims.

Initially, this will come from connecting disparate sets of existing information, exploiting AI's ability to integrate wildly varying data across formats and silos. An AI-enabled orchestration layer can be applied to incorporate, for example, health data to inform a life insurance policy.

External, publicly accessible data can also be included, extending the breadth and depth of information available for underwriting. Perhaps most significantly, this can all occur in real-time – enabling dynamic, automatic policy adjustments to account for a change in circumstances.

For example, when a customer moves house, they currently must inform their insurer manually. With AI-integrated data, their new address could be automatically populated from the post service database. This can then be cross-referenced against geo-location and property information to account for changes in building type and proximity to major water sources, among other factors.

As the Internet of Things (IoT) grows, the volume and variety of data available will expand by several orders of magnitude. Just as telematics devices are already used to assess risk for auto-insurance – tracking drivers' real-world behavior, rather than relying on broad demographics for risk assessment – a universe of connected devices will stream real-time data to insurers for instant policy adjustment.

As personalization reaches this level of granularity, new approaches to service and product design will emerge. There are already examples of health insurers using wearable health data to tailor policies, offer incentives and cross-sell co-branded products. Innovation in this area will soon see an inversion of sales and marketing from 'finding customers for products' to 'creating products for customers.'

From reactive to proactive

Having established an agile, AI-enabled, real-time data infrastructure, insurers will be able to move from 'repair and replace' to a far more cost-effective 'predict and prevent' model. From responding to the present, to actively preparing for the future. Financial risk mitigation, to active risk prevention.

As Manan Sagar, Insurance CTO, Fujitsu EMEIA, says, "Insurance providers can now make dynamic projections about future outcomes, with a continuously updated view of the underlying risk. And they can develop consumption-based pricing models that update in tandem."

The relationship between insurers and customers will fundamentally change. Insurance will cease to be akin to an 'annual tax' that holds little value unless you claim. Instead it will be a service-oriented product designed to prevent risk, rather than merely mitigate its effects – a far more desirable proposition.

Meanwhile, advanced macro-analytics will serve actuaries in responding to unprecedented trends such as climate-related extreme weather, new behaviors like smartphone-distracted driving, and the health impacts of an aging population. Perhaps no surprise that 38% of business leaders cited integrating AI with analytics systems as a top priority over the next 12 months.[4]

Predict and prevent

In essence, the predict and prevent model works by analyzing vast tracts of data to find patterns in the causes of particular risks. By identifying the beginnings of those patterns in real-time data, interventions can be made before the pattern plays out.

Auto-insurance will likely be an early use case. Telematics devices already track the behavior of drivers, assessing their real-world risk.

The difference will be in the granularity and speed of modelling. Rather than merely rewarding safer driving with lower premiums, highly specific recommendations can be made; adoption verified by the same telematics device.

Before too long, this mechanism will operate in real-time. Drivers receiving alerts on their insurance app when driving 70 in a 50 zone – receiving a surcharge if they fail to slow down. Push notifications at a junction suggesting route A over B, based on current traffic information and projected likelihood of an accident.

These nudges – backed by financial incentives – could help customers adopt safer behaviors in every insurable area of their lives.

As wearables proliferate, personalized health recommendations can be made to help ward off long-term conditions, at once improving customer health and reducing strain on health services.

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> Insurance CTO, Fujitsu EMEIA

On advice from their insurer, a business might move equipment from the lower floors of a fixed premises due to the future risk of climate change-related flooding within the next decade.

Over time, the predictions will become more accurate, as machine learning identifies ever more granular patterns, at an ever-faster rate. Interventions will achieve increasing success, both reducing real risk to customers, and lowering costs for insurers.

Modelling emerging risks

At a time of unprecedented change, actuaries are increasingly faced with behaviors, trends, and technologies for which there is no historical data from which to extrapolate the future likelihood of risk.

Cybersecurity. Climate change. Autonomous vehicles. Mass distraction of drivers by persistent smartphone notifications. None of these can be accurately accounted for with current models.

In the past decade, humans have produced more data than in our entire preceding history. As connected devices proliferate, that information growth will accelerate ten-fold.

AI equips actuaries with all this data, in real-time, enabling them to dynamically model novel risks as they evolve, using the same techniques for prediction and prevention at a customer level, but at a macro-scale.

Integrating a continuously updated pool of customer data with externalities gives actuaries arguably more precision than a hundred years of limited, static, historical data ever could. And these models can be automatically, instantly adjusted as these patterns evolve.

Individual and commercial underwriting can then account for these emerging macro-risks, with dynamic pricing, responsive to changes in modelling.

4. Starting Today, AI Will Power Businesses Into The Future, a commissioned study conducted by Forrester Consulting on behalf of Fujitsu, May 2020.

Protecting privacy

There is an inevitable privacy cost to any data innovation. But Manan Sagar believes customers will be willing to make the trade, saying, "I don't drink or smoke. I run a marathon ever year. But my insurer is more concerned that my father died of a heart condition in his 50s, because he was a smoker. If giving my data can make my policy more precise – and further guide my lifestyle choices so I'm even less at risk – I would say yes."

The key is ensuring customers are given a substantive choice. Retain your privacy and pay a higher premium – but one that remains affordable. Or offer your data and receive real value in return: proactive, personalized advice that will improve your safety.

And of course, it is essential to protect the personal data that feeds individual and commercial underwriting. Inclusion in macro-modelling must remain anonymous, in keeping with data privacy legislation like the CCPA and EU GDPR.

34% of business leaders said ensuring their AI systems are trustworthy would be top of their minds over the next 12 months. 31% that their AI is ethical. 30% that it is explainable.[5] We are committed to ensuring all three.

> "34% of business leaders said ensuring their AI systems are trustworthy would be top of their minds over the next 12 months. 31% that their AI is ethical. 30% that it is explainable."

5. Starting Today, AI Will Power Businesses Into The Future, a commissioned study conducted by Forrester Consulting on behalf of Fujitsu, May 2020.

Zinrai: Fujitsu's human centric approach to AI

"The technology to enable this radical shift already exists," says Sagar. "The advent of connected IoT devices and powerful analytics – using convolutional neural networks and AI – has already opened the door for insurance providers to develop 'smart policies'." All insurers have to do is walk through.

And Fujitsu is the perfect partner to guide you across the threshold.

Why? Because we take a unique, human centric approach to AI. One that employs AI in the service of your broader vision. Enabling you to better achieve your goals: reducing costs, improving agility, adapting to an uncertain future – and helping to make it safer for others. All while adhering to our commitment to explainable, responsible AI.

And we are one of the few vendors capable of deploying AI at scale; end-to-end, with all software, hardware, and consultative guidance included. That includes harnessing other cutting-edge technologies.

As Utzinger put it, "AI applications need significant computing power to run. Generally, the industry uses AI optimized hardware such as GPUs. But to expand AI's capability, we need quantum computing. This requires a depth of research knowledge in both AI and the connecting quantum platform.

"Fujitsu is unique in having developed both the world's most advanced quantum-inspired computer, and one which can be harnessed to power our market-leading AI."

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The Fujitsu AI solution, powered by Zinrai

We call our trusted human centric approach to AI, Zinrai. It is less a product or service, more a framework for configuring best of breed technologies into bespoke solutions.

Zinrai encompasses a broad range of AI capabilities, including predictive analytics, Natural Language Processing (NLP) and machine learning. But the two that matter most to insurance are our big data suite, Sholark, and our image recognition application.

Sagar describes Sholark as, "a scalable big data modular appliance that allows processing of structured, semi-structured and unstructured data in real-time, regardless of its origin – enabling advanced analytics and predictive techniques."

Images can be recognised, meanwhile by leveraging "Convolutional Neural Networks to learn patterns from a small number of sample images – enabling fast deployment and agile adjustment. By learning to look for similar, rather than exact replicas, of the patterns it's been trained in, the algorithm can find these patterns across vast datasets; yielding unprecedented levels of insight."

In short? Zinrai is an endlessly adaptable framework, capable of molding to any application you can think of. And that includes accelerating the business of insurance into its agile future.

Discover the Fujitsu AI solution, powered by Zinrai – and how it can put you at the front of insurance's bold new era.
Contact us today.

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