Deloitte.

The Age of With™

Accelerating the impact of augmented intelligence in insurance

Introduction 03
The age of disruption within insurance 04
The AI imperative in insurance 08
Humans with machines is the future of insurance 12
Scaling in the age of *with* AI 22

Executive summary

The insurance industry is undergoing historic levels of change. The age of disruption is creating a sense of urgency and forcing insurers to react. Tech giants like Tesla and Alibaba have invested in insurance companies in order to increase their ability of to share external data sources across multiple platforms, thus allowing them to ramp up insurance personalization capabilities. Auto insurers such as Metromile and Allstate are now offering usage-based insurance to drive efficiencies in underwriting and risk monitoring. Business leaders are constantly asking key questions related to artificial intelligence: Will advanced technologies replace human workers? Should I invest more in machines, or in people?

The answer to these questions is not machines *versus* humans, but machines *with* humans. In the face of disruption, Deloitte has developed multiple solutions aiming to help insurers fast-track their operations, increase agility in assessing risks, and make better decisions. For example, Deloitte is collaborating with Google to develop Onsite AI, a cloud-based solution that allows insurers to underwrite properties without being on site. We are also helping our clients automate contract management (dTrax), identify and manage risks to their brand (CRiSP), and improve rate profiling (RateCloud).

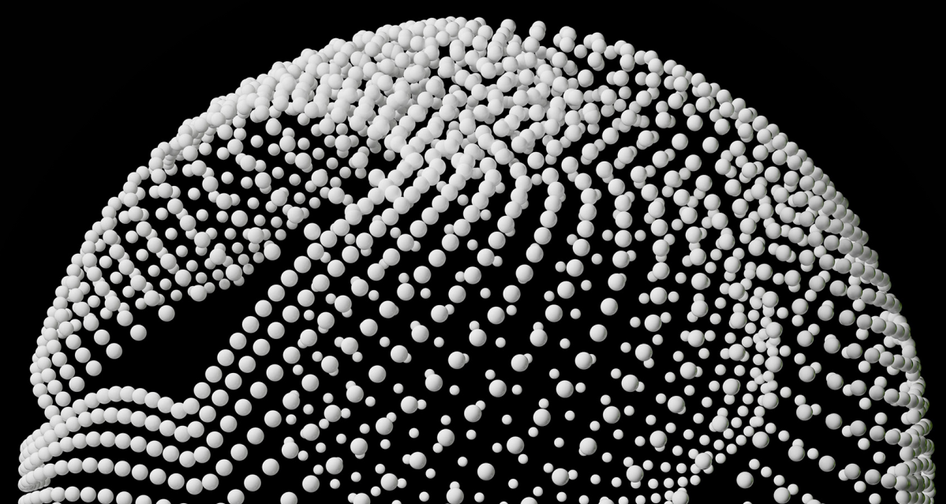
This paper aims to answer:

- *What are the platforms driving evolutional changes in the insurance sector?*
- *What are the key issues facing the sector, and how can insurers approach these issues?*
- *What are the fundamental shifts happening in the insurance industry, and why must insurers act now?*
- *How will key roles in today's insurance industry evolve into tomorrow's?*
- *How should insurers prepare and manage AI at scale?*

By adopting a human-centric lens in the era of augmented intelligence, we discuss how the AI transformation will necessitate transitioning of key roles in the insurance value chain into new functions, and what insurers should do to ensure success while avoiding the gaps and challenges.

One of the goals of our Age of With papers are to create a discussion around building human intelligence where it is aided, enhanced, and augmented with AI.

The age of disruption in insurance



Disruptive trends have reimagined the possibilities of what an insurer can be.

The age of digital disruption has permanently altered the insurance market landscape and is radically transforming the global property and casualty (P&C) sector. Rapidly evolving technologies have collided with longstanding customer issues to create what we believe to be a series of deep, lasting, systemic challenges for insurance. Today's insurers are being compelled by their existing and new competitors to deliver new offerings to better meet consumer needs and preferences. To do this, insurers are evolving their distribution strategies, exploring new partnerships, altering their products, and transforming how they use technology to deliver upon their strategy.

The rise of new technological trends, such as IoT (Internet of Things), big data, blockchain, AI, smart technologies, and autonomous vehicles has enabled insurers to become more efficient, process-driven, and cost-effective. Progress in key operational activities is driven by new ways of interacting with consumers, automated procedures, and tech-enabled risk prevention.

- Chatbots
- Blockchain P2P insurance
- AI fraud detection
- Big data consumer insights

Concurrently, a **data explosion** resulting from the expansion of these technologies, as well as some societal trends such as the sharing economy and ubiquitous connectivity, have massively increased the volume, speed, format, accuracy, and value of data sets that are collected by insurers. This means **insurance will be more connected, more real-time, and more accurate.**

Experts are empowered with crucial data points to achieve key insights that drive impactful product decisions. A larger proportion of lower-impact decisions are automated based on higher quality data. Telematics can work with alternative data to provide customers with unique usage-based insurance experiences. The increased availability and accessibility of real-time data will drastically impact all areas of the value chain (e.g., by improving risk assessment that will result in more accurate, dynamic pricing).

SURE. Sure provides on-demand insurance products any time a buyer wants them. For example, the Sure app connects Uber and Lyft drivers with basic episodic ridesharing coverage.

Moreover, **rising customer expectations** have given rise to digital intermediaries and products that are **more personalized, device-orientated, and easy to use.** Insurance has undergone a "retailization—customer-centric, retail-like thinking has re-shaped the digital insurance business model. Today's customers have a cost-effective mindset, which means they will get more for their money as policies will become cheaper and coverage will be more complete. Thinking like a retailer means thinking like a customer, and insurers will need to reinvent not only their IT, data, and customer service processes but also their overall operating culture to reflect a customer-centric reality.

trōv Trov allows users topurchase miniature insurancepolicies for specific electronic devices, and allows them to turn that coverage on and off at will, allowing customers to dynamically control risk exposure.

On the other hand, **increasing involvement from large players,** such as banks and tech companies, including Google and Amazon, have expanded the horizon of opportunities for insurers. Over US$3 billion was invested in insurtech companies in 2018.[1] Tesla, for example, announced plans to sell car insurance in 2019.

TRAVELERS amazon Travelers teams with Amazon to offer smart home products and insurance quotes.

Finally, **the entry of non-traditional players**, such as insurtechs and fintechs, are redefining the operation and business models of today's insurers. "Prosumer" (people who consume and produce products) offerings emerge as divisions between personal and commercial lines become increasingly blurred (e.g., Airbnb[2] set up an insurance program that provides homeowners with primary coverage for bodily injury or property damage related to an Airbnb stay). Insurers and non-traditional players are partnering up to offer ecosystem platforms, on which insurance products are bundled with peripheral products.

AIG Travel Guard Travel Guard launched an app powered by Jauntin to allow Canadian customers to purchase coverage in blocks of time. It uses GPS technology to automate coverage for travellers from the moment they leave their home province until they return.

All of these trends, among others,have reimagined the possibilities of what an insurer can be and what it will need to overcome to remain a long-term player. Given the exponential pace of change, insurers need to understand the implications of these trends, especially from a data and AI perspective, and deliberately consider how they should respond.

The Age of With | Accelerating the impact of augmented intelligence in insurance

Implications

With rapid changes to the industry, the insurance of today will look very different from the insurance of tomorrow.
What will be the implications of these evolving trends on the sector? What are the main issues facing it? How should insurers react?

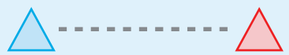
The rise of new technological trends has enabled insurers to become more efficient, process-driven, and cost-effective.

Insurers globally will start to act fast to grab the quick-wins that new technology has brought about. For example, **back office operations will be replaced by robotic processes and robotic process automation. When this happens, the current human workforce may undergo a huge transformation, and insurers must understand the potential threats and risks this may bring**. To face these challenges, insurers must make changes to their technology foundation, processes, and operational model according to their strategy and vision, and insurers need to be mindful of the wide-scale change management that will take place throughout this process. The future-state roadmap needs to be updated to prepare for change. Insurers must be constantly asking questions like, "Will my employees be replaced?" "How can I re-engineer internal processes to meet new business needs and enable new capabilities?"

The data explosion has pushed insurance to be more connected, more real-time, and more accurate.

As data permits insurance to be more and more personalized, **customers who are priced out will be excluded by more individualized models.** As AI experts train unique algorithms with company-specific data, the gap between those who receive tailored service and offerings and those who are excluded may become larger over time. Insurers will need to balance between investing in customer retention (and upselling to maximize profit gains) in the current customer pool and spending time and resources on additional algorithms that may capture the outlier customers. In an attempt to find this balance, there are some key questions an insurer might consider: "Am I operating in a specific sector or niche?" "Am I an incumbent who has already accumulated massive data points on existing customers, and if not, how can I best discover customers are priced out by bigger companies?"

Rising customer expectations have given rise to digital intermediaries and products that are more personalized, device-orientated, and easy to use.

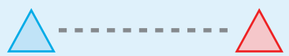


As insurers collect more data points via increased customer interactions, **customers are also expecting insurers to increase points of contact at relevant times with relevant messaging and offerings.** In fact, 57 percent of insurance customers around the world, across all product types, prefer to hear from their providers at least semi-annually; only 47 percent receive that level of contact currently.[3] As AI becomes more pervasive, an increasing part of lead identification, generation, and capture will be automated by AI. This will slowly become reality for many companies that are looking to personalize at scale, so the key questions to winning market share will become: "How do I acquire the best actuaries who can understand and leverage AI tools to offer the most relevant product offerings?" "Where can I acquire data that my competitors don't have access to, to help me understand what my customers really want?"

The increasing involvement from large players, such as major tech companies, has expanded the horizon of opportunities for insurers.

Incumbents will start from a position of disadvantage on the data battlefront compared to large technology - but they can partner to advance. For example, Amazon is about to offer insurance in conjunction with its connected home devices. According to a J.D. Power survey, one in five consumers say they would use Amazon for their home insurance—and most of those who took the survey (80 percent) already have insurance with a large national carrier. With billions of consumer data points and deep AI expertise, the power of these tech players is not to be underestimated. There are tremendous opportunities to exponentially grow an insurer's capabilities when the right kind of partnerships are fostered. For example, Google invested in Applied Systems, a provider of insurance technology and cloud-based software for independent agencies. The company will be able to use Google Alphabet's big data and virtual technology to enable better customer engagement and solve critical problems and issues. Insurers need to explore these questions: "Will this partnership help me gain an advantage in the data battlefield, and if so do I have the technological capabilities to process it?" "What data can be shared, and what cannot?"

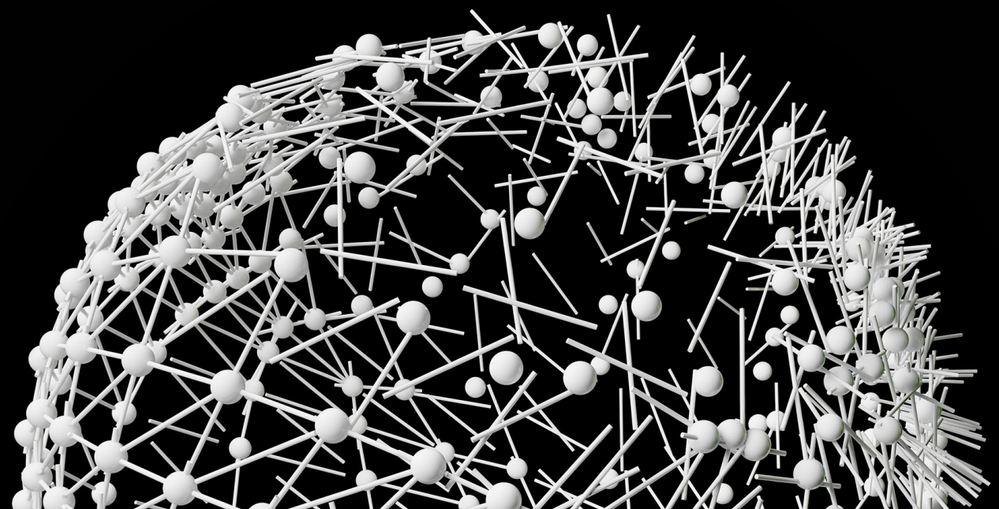
The entry of non-traditional players, such as insurtechs and fintechs, are redefining the operation and business models of today's in users.



Growth potential will be concentrated in non-traditional markets due to the accelerated technological abilities of new players. In fact, the growth rate in life and non-life insurance markets in Southeast Asia is two to three times the global average. Eighty percent of global growth in gross written premiums in China between 2010 and 2015, but only 3.7 percent average real growth of the global insurance industry from 2016 to 2018. The macro environment shifts are usually outside of an insurer's control, and variables are extremely versatile. Therefore, insurers should focus on: "How can I bring more relevant product offerings for customers?" "How can I explore new ways to generate revenue, such as reducing cost with automation, or discover new risk categories?"

The AI imperative in insurance

As we examine the challenges insurers may face, we asked: What does for this mean for insurers today, and what may it mean for them tomorrow? Why should insurers act now to protect their future?



Why AI now?

The global insurance industry will be highly sensitive, and particularly vulnerable, to the disruptive trends that AI is bringing about.

In the second edition of Deloitte's *State of AI in the enterprise* survey of more than 400 financial services industry and insurance executives, we've found that respondents are enthusiastic about AI capabilities, investing in them and using them skillfully. 30 percent of the companies have invested more than US$5 million in the last fiscal year, and 81 percent plan to increase spending this year. However, for many of them, AI transformations could take longer than expected: although 82 percent of respondents report positive ROI from AI efforts, less than 50 percent of respondents measure key performance indicators that gauge the success of AI efforts. In other words, AI-led transformation must happen with the right management and strategic approaches.

Evidently, the AI shift is resulting in far-reaching consequences, and insurers need to react accordingly:

- Customers need to be served differently. As customer demands lead to increased interactions, insurers will need to shift from transactional, low-touch customer interactions to more advisory, high-value, and high-touch customer interactions. Individual needs can no longer be fulfilled with a set of defined product features and standardized pricing – insurers will need to learn to solve customized needs and preferences with solution-based offerings.
- Customers need to be targeted differently. Consumer data is a critical ingredient in the building of future value propositions-not just aggregated demographics or risk profiles, but highly individualized customer profiles. Insurers need to shift from offering segment-based products and promotions, to hyper-personalized offerings and engagements. As privacy concerns arise, enabling consumers to actively decide what they are willing to share and when will be critical to putting them in the driver's seat.
- Insurers need to play differently. Today, as most insurers are still experimenting with these technologies, they are largely viewed in isolation. However, in the future, the continued convergence of data and technologies will allow insurers to "do a lot more with less", causing a step-change in operational efficiency and customer engagement, and enable secure data sharing at a scale not possible before. Insurers need to shift from being reactive and only responding to customer-initiated actions to a more proactive, preventive mindset – and develop better tracking and predictive capabilities to pre-empt customer needs.
- Insurers must act now. As we unwrap the mystery of AI and what it means for the insurance industry, we can clearly see that the transition to an AI future is no longer an option.

Insurance of today	Insurance of tomorrow
Transactional It's mostlyfocused on tactical,low-touch customer interactions.	**Advisory** It's mostly focused on high-value, high-touch customer interactions.
Reactive Actions are mostly initiated bycustomers: theinsurancecompaniesthen react.	**Proactive** Better tracking and predictive capabilities pre-empt customer actions.
Segment-based Products, promotions, and pricing are based on aggregated risk profiles.	**Individualized** Offerings are hyper-personalized and customer engagements are individualized.
Product-based There is a defined set of product features with standardized pricing and placement.	**Solution-based** Offerings are customized based on individual customer needs and preferences.

From AI today to AI tomorrow

As we learn about the AI imperative, insurers are constantly asking questions: What will the future look like? Will humans be replaced by machines?

Assisted intelligence:
Requires human assistance and interpretation
(e.g., data management, data analytics, robotics process automation, AI risk and control)

Augmented intelligence:
Machine learning augments human decisions
(e.g., intelligent automation, cognitive insights, cognitive engagement, narrow AI)

Autonomous intelligence:
AI decides and executes autonomously
(e.g., general AI, blockchain)

Case study: Onsite AI

What is Onsite AI?
Onsite AI is a cloud solution developed by Deloitte and Google that has been built to transform the underwriting process. It provides the intelligence needed to underwrite a property without having to be on-site, using real-time, on-demand data to create a digital print of any location across the world.

How does it work?

Onsite AI mines global data sources. Machine learning algorithms extract, transform, and combine unstructured and structured data, drawing on a range of sources such as open data, satellite/aerial imagery, and social media.

Then a digital print of properties is created to equip underwriters with all there is to know about the building they are assessing, without needing to visit the site. Onsite AI delivers the attributes of any building around the world by using additional analytics from local surroundings, 3D building generation, building detection, interior scene analytics, facade classification, and local points of interest.

Users are able to re-run pricing scenarios in real time in a controlled environment since Onsite AI provides an application programming interface to easily integrate insights on all properties into an existing database. This increases the accuracy of underwriting assessments and also makes scaling easier.

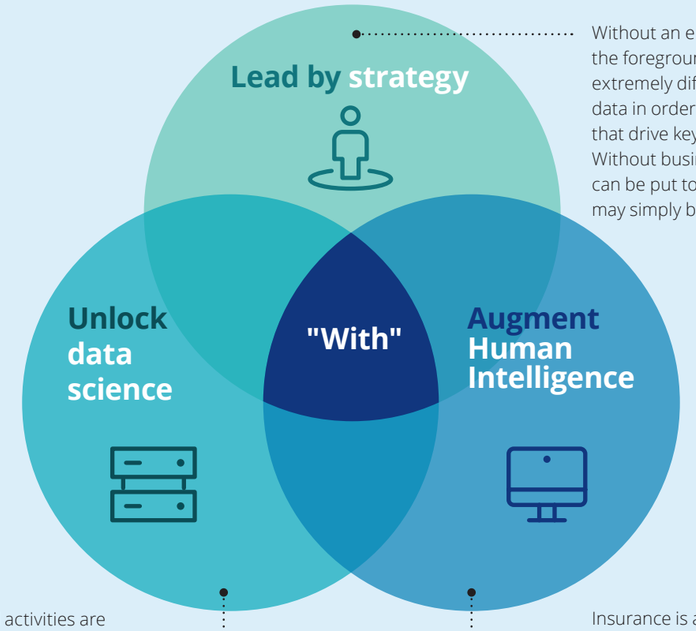
What are the benefits?

1. Reduces the need for physical inspections
2. Improves risk assessment and portfolio management
3. Enables personalized pricing for customers
4. Accelerates the quotation process
5. Uses specialist expertise
6. Grows businesses in new locations and markets

The Age of With™

Neither technology nor people alone can respond to the current driving forces of change. It will take humans working together with machines in a designed system.

To succeed in the future, insurers need to set a deliberate strategy and unlock machine abilities to enable strategic decision-making for humans.

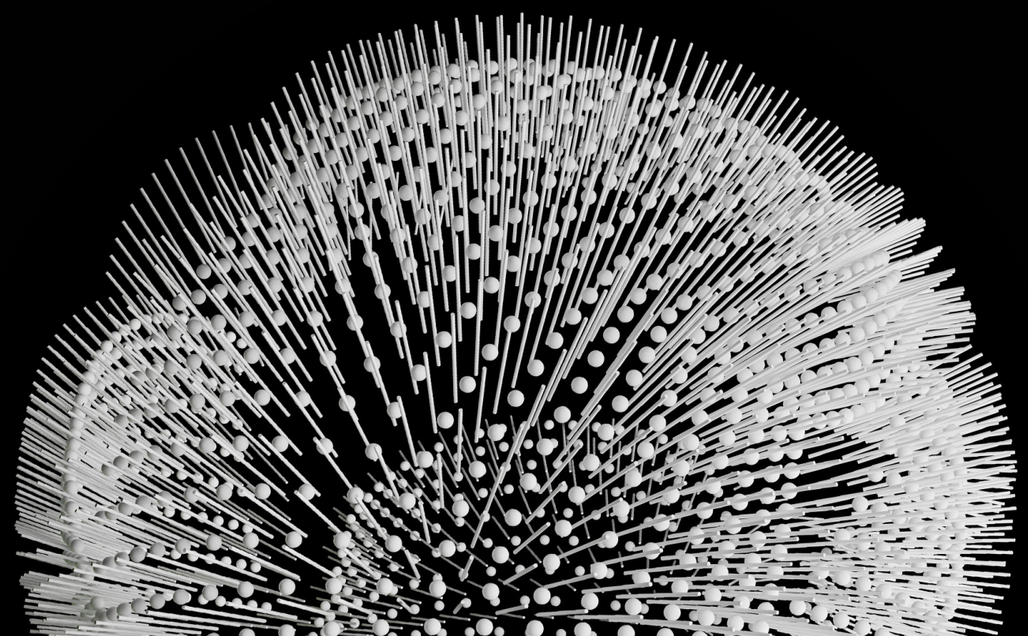


Without an enterprise strategy that sets the foreground for using data, it will be extremely difficult to choose the right data in order to build the right models that drive key business decisions. Without business-relevant analytics that can be put to use, technology efforts may simply be futile.

Progress in key operational activities are driven by data, and technology will act as a key enabler to drive critical insights for decision-making. Using AI, insurers will be able to look beyond their current customer, data, and knowledge base, and tap into unlimited opportunities that can only be unlocked with the power of data science.

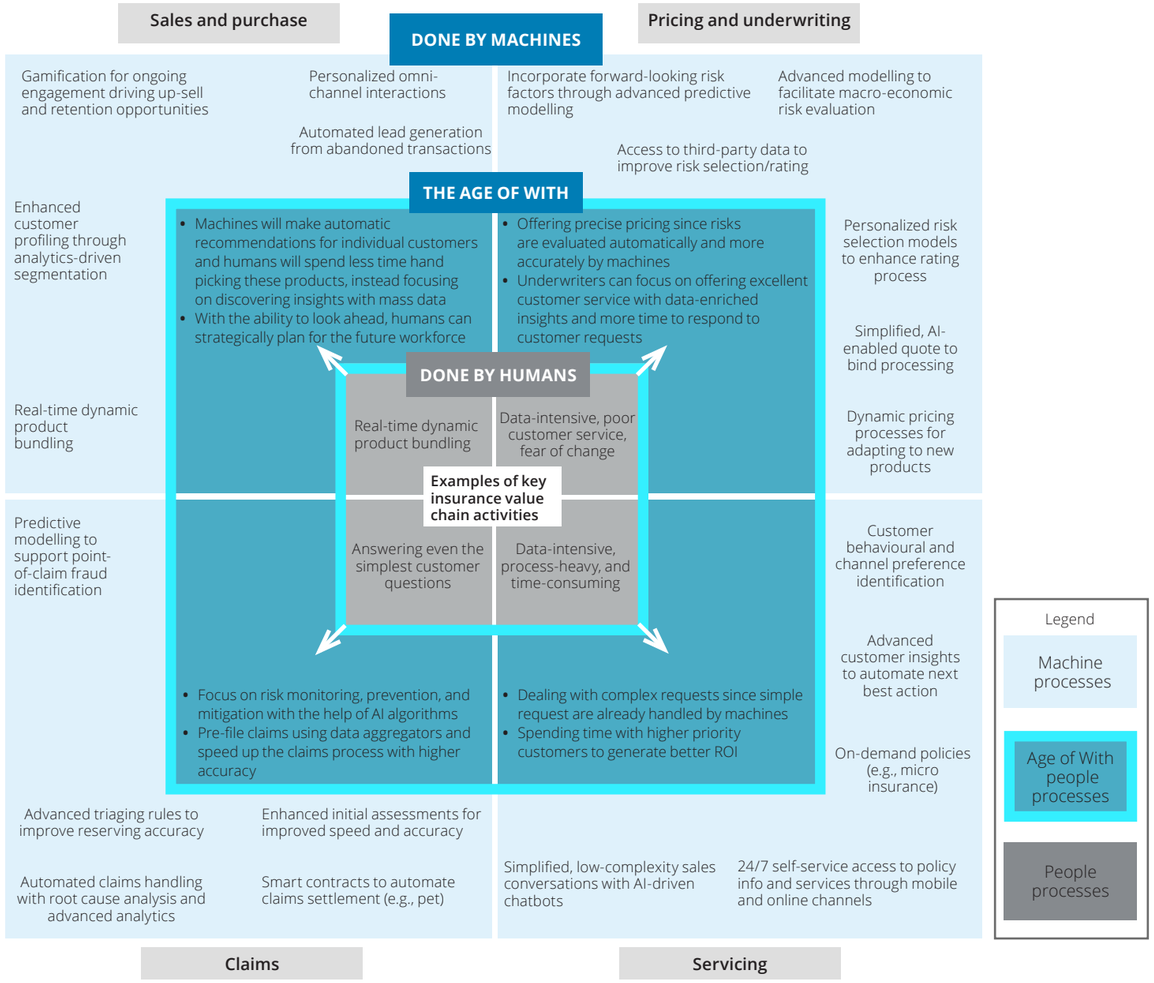
Insurance is a people business. It takes one human to understand another. A machine can predict human behaviour, but it won't understand them. This is why humans are the last piece of the puzzle to deliver customer-centric products, services, and experiences.

Humans with machines is the future of insurance



The Age of With | Accelerating the impact of augmented intelligence in insurance

In the future of insurance, a human-centred system will enable insurers to use data with purpose unlocking insights in real-time and driving smart business outcomes. People will be the core part of the delivery mechanisms, while analytics will serve as an enabler for people to pursue business priorities.



The Age of With workforce of the future depicts how four key roles will evolve as machines replace a portion of the people processes today

Actuaries **Underwriters** **Agents** **Adjustors**

On the outside frame, we see that machine intelligence will automate many aspects of the value chain, and the data-intensive, manual processes of today will evolve into higher cognitive activities. We will dive into four key roles in the insurance sector,and explore how the operations for each role will shift from being one-dimensional, as they are today, to becoming multi-dimensional tomorrow; in other words, from performing specific tasks to making decisions based on the outcomes of multiple tasks. Some key questions we aim to answer in this section include:

- How will each key role evolve?
- What are the main enablers driving the actuarial, underwriting, servicing, and adjusting transformation?
- What are the gaps and risks that insurers need to look out for during this transformation, and how can insurers best prepare for it.

Underwriters will evolve into...

Customer portfolio managers
Using the volume and quality of customer data, underwriters can help educate, advise, sell, and build loyalty with customer portfolios, while enhancing the client experience.

Strategic analysts
Through the addition of sophisticated analytics, underwriters will contribute to broader business decision-making as they have greater control and visibility over loss ratios and underwriting portfolios.

Key enablers for the future underwriter

Digital and IoT will enable insurers to provide an end-to-end policy-serving experience. Customers will need to provide less information as external data can be integrated to provide a more complete view of risk. This saves customers time and improves their experience, thereby increasing retention. For example, Sonnet, a direct-to-consumer insurance company, allows customers to buy coverage online by answering a set of simple questions. This means that policyholders are priced more effectively and more consistently as insurers leverage third-party and usage-based data.

Meanwhile, **real-time connectivity will allow any-time submission of risks and enable usage-based insurance.** Digital interfaces can enable the provisioning of insurance any time and the ability to perform that in a much more simplified manner when coupled with third-party data and analytics. The "always on" insurer allows the customer to increase or decrease coverage depending on needs (e.g.,) pay as you go/drive. This also presents a unique opportunity for insurers to transform the insurer/customer dynamic from a defensive to an offensive posture, by helping policyholders prevent losses and drive down claims costs.

Additionally **cognitive analytics will help underwriters enhance decision making and improve the quality of their results.** Underwriting is more than risk selection and pricing. It also requires qualitative judgments about future industry performance and rigorous portfolio management to avoid markets where even great underwriting cannot compensate for unfavourable conditions. By analyzing third-party or alternative data and equipping underwriters with relevant portfolio analytics, better risk selections can be made and greater levels of productivity will be sprung. That's because, beyond underwriting decisions, managerial decisions can also be improved upon.

Finally, **machine-learning solutions can enhance underwriting analytics and help underwriters save time through the triaging process**. We now collect data directly from the customer and can integrate large amounts of external data into the process. With the help of advanced technologies, insurers can easily evaluate submissions to see if they match their risk appetite and route them to either automated, low- touch, or full-touch underwriting. Underwriters can then make their decision based on the analytics, rules engines, and machine-learning stats.

How should insurers prepare for the transformation of underwriting *with* AI?

Plan for talent transformation
Robotic transformation will redesign job descriptions and sometimes even entire functions within a company. Fewer people will be involved in what used to be people processes, and so insurers will need to reinvest in training people for higher-value tasks that require human input. Insurers should execute their automation agenda as part of a long-term talent transformation.

Ensure data transparency
As mentioned, data plays a vital role in optimizing underwriting processes. This is why insurers must stay ahead of data privacy regulation, and make sure transparency is enforced so that policyholders understand exactly what data is being collected about them and how the company plans to use the information.

Use-case examples:

Simplified, AI-enabled quote to bind processing

Personalized risk selection models to enhance rating process

Dynamic pricing processes for adapting to new products

Access to third-party data to improve risk selection/rating

See it in action: generation of health risk assessment assessment

Targeting safer drivers
State Farm[3] ran a proof of concept to develop a program that uses computer vision and dashboard camera photos to identify distracted drivers. This data can be used to micro-target safer drivers and offer lower premiums.

Gamefied insurance policies
John Hancock is integrating Vitality into all new life insurance policies being issued. Through Vitality, customers can earn rewards by performing physical activities (measured through customers' step count). Globally, Vitality policyholders live 13 to 21 years longer than the rest of the insured population, and have 30 percent lower hospital costs.

Agents will evolve into...

Specialized customer experts
By allocating more time to serving customers and leveraging strong insights about customer behaviours, needs, and preferences, the agent can become a customer expert.

Ecosystem integrators
Given agents' understanding of the customers, they can market their customer knowledge and connections to other roles in the insurance ecosystem, sharing this information across partners to help inform more customer-centric decision-making throughout the value chain.

Key enablers for the future agent

Traditional and non-traditional data equips future agents with personalized products and services recommendations, to drive purchase and retention. Partnerships with other companies once classed as competitors (e.g. incumbents and new entrants) are now classifying themselves as "co-petitors" to share data about customers and reposition for new, more enticing products and offers. These "prosumer offerings" mean to meet the needs and preferences of customers in the most effective way. Agents will be powered by AI-driven insights via digital platforms (e.g., next best action, likelihood to purchase scores based on customer life-stage) to deliver targeted and proactive product recommendations, leading to deeper and more meaningful customer relationships. Agents will also start to become increasingly specialized as customer expectations rise and generic insurance advice becomes less desirable.

Virtual assistants are allowing customers to get answers immediately and accurately, and helping insurers optimize customer servicing costs. Insurers are looking for methods to augment current channel experience and provide more real-time, personalized support at lower cost. Virtual assistants (e.g., chatbots) introduce an opportunity to connect with customers in their own space (e.g., Facebook Messenger), shifting high-frequency, low-value customer requests to a lower-cost channel.

On the other hand, **AI can be used to provide issue-solving recommendations based on clustered historical customer profile and service data, saving time for agents.** By using AI, it is possible to design a more efficient input management system that avoids subsequent manual work, automatically deletes duplicated info, and learns from previous interactions to cluster useful information. This will enable customer interface to route each issue to the right internal contact and provide recommendations based on previous interactions with the same customer, making the agent's job more efficient.

How should insurers prepare for the servicing transformation *with* AI?

Build local communities
Agents have to find ways to decrease their cost and/or increase the quality of their service, and building local communities is a great way to do both. By fostering a close-knit community, the agent becomes the go-to when digital channels cannot solve customer needs or provide better answers for customers who are beginning to proactively own the insurance process.

Stay ahead on new technologies, products, and trends
An important aspect of the agent's role is advising customers which insurance product they should choose, and why. As the barrier to learning about insurance policies decreases due to digital channels and proactive touchpoints, the broker of the future will not only need to educate customers on policies, coverage, and insurance products, but also on new ways to insure, such as usage-based insurance (UBI) or peer-to-peer (P2P) insurance.

Use-case examples:

Simplified agent interactions

Enhanced customer profiling through analytics-driven segmentation

Proactive lead generation from abandoned transactions

Gamification for ongoing engagement, driving up-sell and retention opportunities

See it in action: Intelligent chatbots and virtual assistants

Improving customer relations
EchoSage[4] has created robo-advisors that are expected to complement conversations between agents and their customers, and to support interactions that are transactional in nature or where potential margins are small.

Supporting training and searching
Allstate[5] leverages an AI-powered virtual assistant, Amelia, to **train** newly **hired agents** on legal restrictions and policies. The virtual assistant also provides other tips to minimize human errors during customer calls.

Actuaries will evolve into...

Strategic planners
Equipped with data to support strategic decision-making, actuaries can help expand an insurer's strategic options by recommending new ideas to evolve the product and customer mix.

Cross-functional collaborator
With the expertise to evaluate data in untraditional and productive ways, actuaries can support many roles across the insurance value chain in making use of their data.

Key enablers for the future actuary

Robotics will automate various segments of the actuarial process to refocus human effort on more important tasks. Currently, actuaries perform a range of activities across the cognitive/social spectrum, with more effort spent than desired on lower cognitive activities, such as computation and distillation. With the disruption of technological and talent/operating innovation, the nature of the actuarial profession and its anticipated future activities will shift human work toward higher cognitive and value-add activities, such as ideation and decision-making. New tools will assist actuaries in identifying trends and anomalies, then prioritizing reviews for the actuarial team. This not only upscale the productivity level, but also increases the value of actuarial activities.

AI and other new technologies enable new actuarial capabilities and insights. An example of these are advancements in insurtech. They are enabling new capabilities such as regtech (regulatory technology), which allows for compliance reporting at a more granular level and answers a much broader range of questions. Using sophisticated analytics, data integration, and natural language processing, the compliance department can better respond to changing regulatory demands and apply analytics to advise business functions, and to determine areas of heightened regulatory risks, such as agent sales practices, rate and form filings, customer and third-party fraud, and business operations.

On the other hand, **modernized core actuarial infrastructure and platforms (e.g., data warehouse and actuarial models) can support reengineered actuarial processes and improve capabilities at a lower cost.** The evolution of technology is also giving rise to more advanced foundational tools to support new processes such as RPA or cognitive automation. Thus, through adoption of modernized platforms, there will be long-term benefits such as minimized time, cost and effort to complete the same process, especially where business requirements haven't changed. However, this may require considerable investments in terms of time, costs, and resources.

Finally, **RPA can improve data quality / consistency that can result in better analytics, insights and increased revenue**. Because the actuarial function involves handling large amount of data on a day-to-day basis, data quality and governance play a very important role in enabling effective data analytics capabilities, robotic platforms are secure, audited and managed within an IT corridor of governance. Therefore, adopting robotic functions will not only save efforts on data management, but also provide high potential ROI.

How should insurers prepare for the actuarial transformation *with* AI?

Scale and adapt to conquer growth challenges
Changing demographic expectations regarding omnichannel delivery and greater service necessitate innovative products and optimized operations across distribution channels. Finance and actuarial systems and processes should be scalable and adaptable to incorporate new markets, products, legal entities, and regulations.

Insurers need to rethink people and processes
In the actuarial reserving process, insurers need to be more provocative during triage to ensure resources are well leveraged and not being spread too thin (e.g., more straight-through processing). Some areas may actually require more human time, but resources need to be deployed in areas with the most impact. Throughout the transformation, actuaries must be equipped with new skills, and insurers need to provide sufficient learning and development opportunities to equip actuaries with the right tools and knowledge.

Use-case examples:

Advanced modelling to facilitate macro-economic risk evaluation

Enhanced customer risk-profiling through analytics-driven segmentation

Early-duration claims model to identify patterns associated with accidental deaths

Mortality modelling based on biological indicators of aging

See it in action: Rate-filing automation and validation

In Canada, property and casualty loss ratios are the highest they have been in a decade. Yet it takes insurers on average four to six months to file and receive approval of new rates. Pricing agility is hampered by incomplete or inaccurate data, inefficient and convoluted processes, and a lack of effective controls. Deloitte devised a solution for this.

The RateCloud solution is a new cloud-hosted product that enables users to re-run pricing scenarios in real time in a controlled environment, improving the efficiency and speed of pricing, from source data to regulatory filing, eliminating human error. By increasing rate-filing agility with the help of RateCloud, Intact[6] was able to achieve a rate increase of 5 percent, saving one month processing time, and increase more than $7 million in revenue in private passenger vehicle (PPV) insurance.

Claims officers will evolve into...

Customer loyalty drivers
As the speed and quality of the claims process is a key determinant of the broader insurance experience, enabling adjustors with AI offers the opportunity to improve overall customer satisfaction and loyalty.

Customer liability experts
Adjustors, better equipped with claims insights, have the opportunity to leverage data to evaluate liability and thereby inform strategic decision-making.

Key enablers for the future adjustor

AI is being used to triage and grade claims to increase adjudicator efficiency. Currently, claims processing often requires adjustors to manually review complex documents, which slows response time. Technology will be able to help adjustors rank claim severity using deep learning to read claims documents and score their urgency, severity and compliance to expedite triage. This will provide adjudicators with summaries and statistics that enhance their decision-making and can also increase the efficiency of individual underwriters. As a result, this will help void poor claims experiences and deliver positive customer outcomes.

Advanced algorithms can be used to automate fraud detection, improve claims performance, and improve customer satisfaction at the same time. New tools and new data can be used to analyze large quantities of data efficiently and accurately through machine learning, allowing for in-depth review of every submitted claim for fraud. Claims fraud is a major cost centre but in the meantime it is a major avoidable cost for insurers. Analytical models using external data (e.g., news reports, social media) can more accurately flag cases of fraud, reducing potential losses while increasing throughput and cutting costs at scale as a result.

On the other hand, **claims settlement is becoming an automated, self-service and quick-to-pay experience for customers.** Machine-learning algorithms (e.g., natural language processing, image recognition) integrated with internal (e.g., customer policy) and external (e.g., medical records) data can enable insurers to fully automate claims payout for a majority of cases, allowing insurers to process claims instantly. Instant payout can increase customer satisfaction while reducing operating cost. Algorithms are able to refer complex claims to adjudicators as appropriate, ensuring fraud and errors are minimized.

Telematics and external data can be used to help people respond faster to natural disasters, and restore livelihoods more efficiently. For example, Tractable focuses on creating representations that capture the subtlety of real damaged automobiles and properties. In a car crash, there might be incurred, but not reported, losses; for example, internal damages. Therefore, the appraisal should be not just visual but also based on IoT or telematics data. This means that, due to high accuracy, claim officers only need to review 5 to 10 percent of the estimates. This is a perfect use case of how the work experience of thousands of people can be distilled into action, since the AI technology has already been trained on tens of millions of these cases. An experienced claims officer, on the other hand, might need to have years of experience to make accurate estimates.

How should insurers prepare for the claims transformation *with* AI?

Reinforce up-to-date privacy regulations
The automation and risk prevention aspect of claims largely relies on internal and external data, for example IoT and new data sources are used to monitor risk and trigger interventions when factors exceed AI-defined thresholds. This means that insurers should be more cautious about using the data at hand, and maintaining transparency for customers.

Use AI-forward technologies to conduct investigations
With the advancement of technology comes the increase in available data, both for the adjustor and the client. Adjustors must be aware of what implications this has on investigating claims, both positive and negative. Technological advances may lead to more fraudulent activity, as well as more advanced investigative methods to combat such risks.

Use-case examples:

- Automated claims handling with RCA and advanced analytics
- Enhanced initial assessments for improved speed and accuracy
- Advanced customer insights to automate next best action
- Customer behavioural and channel preference identification

See it in action: Accurate, friction-free claims processing

Accurate analyses
Suncorp[7] uses an AI tool to conduct liability analysis and fast-track simple claims, such as single vehicle incidents with detailed descriptions, with a 90 percent accuracy level.

Pattern identification
Shift Technology[8] uses AI to find patterns of fraud in deep claims datasets, which can then be applied to incoming claims in order to flag potential instances of fraud.

Scaling in the age of *with* AI

The technological view of the value chain in the future of insurance may look very different from today. How would insurers move on from ballpark into more integrated systems being conducted end-to-end by machines? What are the critical steps to ensure success, and the things to look out for?

Making it real: Preparing for and managing AI at scale

While insurers have so many opportunities to grab the quick wins across the value chain, we are seeing artificial intelligence drive optimization on a scale that has never before been seen. How can insurers leverage these platforms to go from Proof of Concept to enabling AI at scale?

While many insurers are pursuing AI initiatives, only 17 percent of companies have scaled or industrialized AI technologies. Companies have been successfully applying AI to a wide variety of processes, products, and services, and adopted AI use cases to enable various parts of the value chain. However, as insurers seek to adopt AI at scale, they run into what we call the "AI paradox": **it is easy to see results from 10, 50, or 100 AI pilots, but all sorts of problems arise when companies try to scale AI across the enterprise.** The following are some key considerations for insurers:

AI systems are different from typical IT infrastructures. Traditional IT systems are easy to modularize, encapsulate, and scale because they work by processing data inputs and data outputs with a specific IT tool. However, AI algorithms learn by ingesting data, manipulating it with the AI tool. The training data is an integral part of the overall system. This entanglement is easy to manage for pilots and isolated use cases, but becomes difficult to address because AI systems interact with and build upon one another. This has many implications; for example, the way that companies deal with AI vendors will become more complex as they interact with different AI systems in the future. Companies should expect to deal with vendors in the near future, as vendors have hired much AI talent and usually have stronger expertise. Companies should be prepared to deal with vendors in a strategic way that does not hurt existing data and can strengthen competitive advantage.

An AI-driven enterprise needs the right blend of talent, but **team curation of the right "purple" AI talent (those who possess a mix of business and technology skills) is challenging.** On one hand, there seems to be a lack of AI data scientists who understand the insurance business well enough to train the best risk algorithms to help an insurer gain an advantage against competitors. On the other hand, employees face the concern of being getting replaced by machines as AI becomes pervasive across the enterprise. Tackling these challenges requires finding the right talent, strategically embedding them to be central to the delivery mechanism, and enabling them with the new AI tools

Finally, AI-driven enterprises need structure and governance. Companies that are able to strategically scale AI usually have clearly defined governance and operating models. The decision on the setup—centralized or federated— should be based on the enterprise strategy and vision. Regardless of the setup, there needs to be clear accountability and established leadership support, with dedicated AI champions.

We foresee three key areas that will get more challenging as AI scales:

Personalization with AI at scale

By mining internal and external data, insurers can personalize the user experience for millions of users across all marketing channels in real time. AI can help insurers build newer, better products to suit customer needs, create tailored risk profiles to underwrite individualized policies, then reach customers with targeted, personalized marketing techniques. AI is personalizing the entire customer journey across the value chain.

Digital workflow automation

By pixelating the opportunity set by breaking the spectrum of work and entire end-to-end processes into bite-sized chunks, integrating multiple systems and sources of data, front and back office workflows can be digitalized and automated. This will result in the end-to-end process automation of what have until today mainly been people processes.

Risk sensing and preemptive modelling

Risk sensing is an underlying enabler that has a profound impact across distribution, underwriting, servicing, and claims. Predictive analytics techniques can enable insurers to insure against entirely new risk categories and generate real-time interventions and advice to help customers prevent losses. Simultaneously, it can reduce fraudulent claims while increasing throughput, resulting in lower loss ratio and operating efficiency.

*Purple talent: refers those who both understand the analytics process and have business instincts (Deloitte IDO Survey Report: *The people dimension of analytics*)

The Age of With | Accelerating the impact of augmented intelligence in insurance

Key questions and considerations for AI at scale

	1. Revenue maximizing (customer facing)	2. Cost focused (process optimizing)	3. Financially disciplined (portfolio balancing)
	Equipped with enormous data points, insurers are able to provide better solutions for individual customers, achieving personalization at scale. With this approach, insurers focus on revenue generation by maximizing customer opportunities and increasing customer retention.	A key factor to increasing profit is to reduce cost by optimizing processes—and this approach allows insurers to achieve this in all areas of the value chain: including distribution, underwriting, servicing, and claims. This means insurers are adopting a cost-centric and efficiency-driven mindset.	By understanding risks and predicting possible risk scenarios, insurers are able to balance this while underwriting policies to improve financial discipline. By approaching this in a risk-averse mindset, insurers can drive optimal revenue corresponding to smart AI evaluations
	Example: Personalizing with AI at scale	**Example: Digital workflow automation**	**Example: Risk sensing and preemptive modelling**
General	• To what extent should an insurer personalize with AI to **achieve optimal ROI?** • What does this mean for the **technological infrastructure** supporting personalization • How should insurers ensure **data is cleaned, managed and stored** so that it can be used to drive insights at scale? • How should insurers manage **privacy/ethical concerns** surrounding data when personalization is at scale?	• Does this require considerable investments in terms of time, costs, and resources, and if so, how can insurers **modularize the approach** to achieve optimized value while delivering sustainable benefits? • How will **operating models** change to have business functions support an integrated AI system? • How do **insurers** ensure **everyone understands the value of AI**, and is part of the delivery mechanisms driving smart solutions forward?	• How can insurers **reduce short-term financial risk?** • How do they fine-tune risk parameters to **improve the combined ratio?** • How should businesses **educate their employees** on the risks, uncertainties, and biases? • How can insurers **maximize profit earning** in complex and embedded situations in which market resilience, lack of information, and an increasing number of specialty industries are the main threats?
People	• How can insurers help their agents better understand existing **AI tools?** • Where should insurers seek agents who are **equipped with AI capabilities?** • What will happen with **traditional agents** who have not geared up on the technology knowledge?	• How should insurers strategically plan for **future workforce transformations?** • How can insurers best identify new activities for **employee capacity** to be re-allocated to and achieve the optimal ROI in the shortest time? • What types of **reskilling** is needed, and how would an employee's **career paths** change?	• What kind of **new tools and assets** should actuaries acquire to accelerate their work? • How should insurers **ensure actuaries are equipped** with a deep understanding of existing AI tools and capabilities? • How can insurers **source the best actuarial talent** who also understand the technology?
Process	• How can the **actuarial and marketing departments work together** to target the right products to the right people? • How should different teams work together to ensure consistent messaging is delivered **at an omnichannel** level? • How should insurers **streamline the reporting process** to optimize for future campaigns?	• How can insurers **automate back-office and front-office jobs?** • How should the **triaging process be streamlined** further to upscale productivity? • What process should insurers follow to **enable POCs across the enterprise?**	• How can **business and AI experts work together** to ensure risks are immediately addressed? • How can insurers **streamline the external/third-party data collection processes** to generate faster insights? • How should insurers **design an automated update process** to ensure risk profiles are up-to-date with the new influx of data?
Data & technology	• How do insurers ensure data quality after collecting data points from millions of users? • How do insurers build a scalable infrastructure that can handle any volume of data in real time? • How can insurers train algorithms to identify insurance-specific user-level data points from customer profiles?	• How can new rules be **automatically created and centralized**, and made available to all the applications across the organization? • How can a **logical process framework** be created, so that inefficiencies can be quickly identified and replaced? • How can product architecture be modularized so that the technology team has the ability to **tackle micro improvements** within each tool?	• How can insurers ensure the right **data access** is granted to the right people? • How can insurers build a **decision-driven AI layer** taking into account large amounts of external, telematics, and natural disaster data to ensure highly accurate risk assessment? • How do we ensure **system stability** as the intelligent system grows bigger and smarter?

Operating model	• How **can you optimize your organizational** for both machines AND humans? • What should be **centralized and decentralized** (for example, data governance, cybersecurity, data access, business unit activities, etc.)? • How do you set up an **AI centre of excellence** within your organization, and what type of skillsets would you need? • How can insurers design an operating model that **enables further collaboration** and even bigger thinking? • How should risks and gaps be mitigated with a **successful change management plan** as organizations transition into their new operating model?

Path to AI implementation: Key success factors

Insurers need to think about how AI can become a key enabler of strategic choices, and not a barrier to success. What are the main considerations regarding people, process, data, and technology to ensure a friction-free change-management process?

Organizational processes and capabilities

As an insurer embarks on its AI journey, core organizational capabilities will prove vital for end-to-end analytics strategy conception and delivery. As we transition to augmented intelligence and autonomous intelligence, humans will move from lower cognitive activities to higher cognitive one, from focusing on detailed, manual tasks to making strategic decisions and using key principles to guide machine activities. While we know that machines can adopt these changes to autonomous thinking, an insurer also needs to bring in these capabilities by:

- **Understanding AI-related technologies.** Exploring hypothesis-driven scenarios in order to understand and highlight where and when disruption might occur—and what it means for insurers, agents, and underwriters.
- **Building a coherent strategic plan.** A long-term strategic plan specific to AI will require a multi-year transformation that touches operations, talent, and technology.
- **Enhancing talent and infrastructure.** Integrate skills, technology, and insights from around the organization to deliver unique, holistic customer experiences.

People, culture, and change management

Deloitte's experience with leading organizations has taught us some valuable lessons:

- **Insurers are searching for the right balance between using AI to automate jobs and to augment workers.** The business case for some cognitive projects, such as chatbots, relies heavily on using AI to replace workers, as insurers aim to cut costs through automation. However, reducing headcount through automation ranked lowest of all potential AI benefits in Deloitte's *State of AI* 2018 survey (24 percent of FSI respondents rated this a top-three AI benefit).
- **Change is not a one-time initiative** as the strategic goals of the organization will evolve, requiring internal capability to embed continuous improvement.
- **Insurers need to encourage the right talent and capabilities to meet evolving expectations.** Improving employees' digital capabilities and getting the most out of their data in addition to developing technical insurance knowledge is important for success.
- **Successful change strategies must be leader-led.** This must start at the top of the organization, and it requires all levels of leadership to be actively involved and committed, leading the way for the workforce.
- **Telematics can become a competitive advantage.** Inculcating the ability to bring in more data, such as on accidents, weather, and even political activity, will all lead to a more accurate risk picture and so create more relevant insurance.
- **Developing an agile mindset** around analytics and AI will be critical for sustaining the success of the initiatives and driving the implementation of the strategy.

Technology and data foundations

There are **six key steps for preparing your data foundation so you can supercharge your AI initiatives** and enable wide-scale AI adoption across the enterprise:

1. Get a baseline of current-state data and analytics capabilities.
2. Define the future vision for data and analytics capabilities and identify gaps.
3. Build and enhance for foundational technology capabilities.
4. Implement operational capabilities of information management.
5. Ideate, prioritize, and implement use cases that will enable monetization of data both internally and externally.
6. Partner with other players in the ecosystem to elevate value of data utilization.

To successfully scale AI, an insurer needs to assess which steps have been fully or partially undertaken, what challenges have emerged as a result, and which step it should take next in the near to medium term.

AI depends on one resource, arguably the most important resource for insurers: data. And for insurers to successfully utilize the power of AI and become a leader, they need a data analytics solution that can collect, analyze, manage, and report on the data they're collecting every second.

The Age of With | Accelerating the impact of augmented intelligence in insurance

Path to AI implementation: Challenges

The traditional insurance industry has a few unique challenges that are stymying insurers' initiatives to incorporate AI into their businesses.

Persistent data-quality issues are hurting efficiencies and ROI

Institutions struggle to make available the large quantities of high-quality data required to successfully train AI across their owned and non-owned datasets. Data is typically housed on separate, unconnected systems, and the few tools that are designed for insurers are not intuitive to use, making it difficult for employees to engage with them. This effectively reduces the likelihood an insurer will be able to take advantage of the full potential of the tools. The massive amount of sensor data collected for AI validation may present noisy datasets that are difficult to store and analyze, thus causing an obstruction. In addition, where insights can be generated, insurers struggle to operationalize them on older technology stacks that aren't well-integrated and don't support omnichannel selling and fulfillment.

The use of AI introduces new ethical pitfalls, unintended biases, and risks

While the benefits of AI are clear, the potential unintended consequences are less easy to visualize. For example, new ethical questions surrounding discrimination arise as near-perfect risk profiling may price certain individuals out of the market and risk creating "risk pools of one." Mitigating the social and economic risks of AI in financial services will require multi-stakeholder collaboration between institutions and regulators to identify and address potential sources of bias in machine decisions and other exclusionary effects. Market participants must ensure an ethical, transparent, and explainable distribution of capital, which may require new tools and processes when these decisions are aided by AI.

Organizations are open to change, but shifting the mindset is not easy

When rethinking the relationship on working with machines, people are usually unwilling to let go, for example being acquainted to certain processes and is reluctant to adopt technologies that may be extremely helpful but require some degree of onboarding. On the other hand, there are also some early adopters who are too quick to accept what comes out of an algorithm, which is also a risk. Being realistic and right-sizing the expectation of changes in technology is vital, yet and usually overlooked by most organizations. Throughout the scaling process, insurers need bespoke knowledge and the right amount of infrastructure support across the organization. Success with AI is not just about the technology, but also adopting the right mindset to embrace disruption and create value.

Endnotes

1. "Annual investments in InsurTech doubled last year," Global InsurTech Summit, accessed on August 1, 2019, https://fintech.global/globalinsurtechsummit/annual-investments-in-insurtech-doubled-last-year/.
2. "Host protection insurance," Airbnb, accessed on August 1, 2019, https://www.airbnb.com/host-protection-insurance.
3. "How AI is redefining insurance industry," Insurance Thought Leadership, accessed on August 1, 2019, http://insurancethoughtleadership.com/how-ai-is-redefining-insurance-industry/.
4. "Insurance robo advisor," EchoSage, accessed on August 1, 2019, https://www.echosage.com/robo-insurance-advisor/.
5. "Meet Amelia, IPSoft's strikingly human-seeming AI: What she means for customer support and society," Forbes, accessed on August 1, 2019, https://www.forbes.com/sites/micahsolomon/2018/05/14/meet-amelia-ipsofts-strikingly-human-seeming-ai-what-she-means-for-customer-support-and-society/#4bef37355986.
6. "How Intact is promoting Big Data and actuarial training," Canadian Underwriter, accessed on August 1, 2019, https://www.canadianunderwriter.ca/technology/intact-helping-establish-chairs-in-ai-and-actuarial-science-1004150979/.
7. "Rise of artificial intelligence is no accident," Suncorp, accessed on August 1, 2019, https://www.suncorpgroup.com.au/news/features/rise-of-artificial-intelligence-is-no-accident.
8. "Shift technology: AI that understands insurance claims," Digital Insurance Agenda, accessed on August 1, 2019, https://www.digitalinsuranceagenda.com/180/shift-technology-ai-that-understands-insurance-claims/.

The Age of With | Accelerating the impact of augmented intelligence in insurance

Contacts

Global Insurance Leaders

Neal Baumann
Deloitte Global
nealbaumann@deloitte.com

James Colaco
Deloitte Canada
jacolaco@deloitte.ca

Daniel Shum
Deloitte Canada
dashum@deloitte.ca

Mark Patterson
Deloitte United Kingdom
markpatterson@deloitte.co.uk

Darryl Wagner
Deloitte United Kingdom
dawagner@deloitte.com

Global AI Leaders

Mukul Ahuja
FSI Leader
Deloitte Canada
mukulahuja@deloitte.ca

Shelby Austin
Managing Partner, Omnia AI
Deloitte Canada
shaustin@deloitte.ca

Gurpreet Johal
Partner, Analytics and AI
Deloitte United Kingdom
gjohal@deloitte.co.uk

Nitin Mittal
Principal, Analytics
Deloitte United States
nmittal@deloitte.com

Contributors

Arnab Guha
Manager, Omnia AI
Deloitte Canada
arguha@deloitte.ca

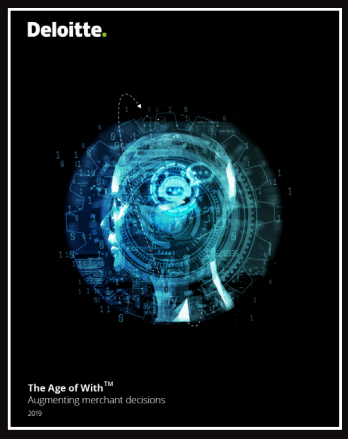
Norman Gao
Manager, Omnia AI
Deloitte Canada
nogao@deloitte.ca

Kelly Sun
Consultant, Omnia AI
Deloitte Canada
kellsun@deloitte.ca

Maya Taishidler
Consultant, Monitor Deloitte
Deloitte Canada

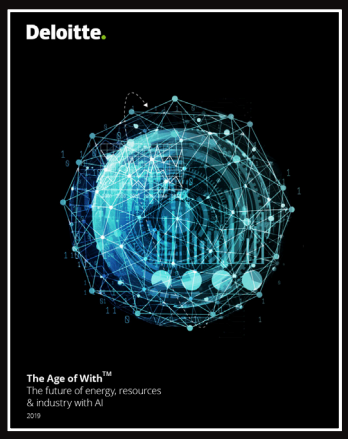
The Age of With™

Explore the series on Deloitte.ca



The Age of With™
Augmenting merchant decisions

The Age of With™
The AI advantage in defense & security



The Age of With™
The future of energy, resources & industry with AI

Deloitte.

Deloitte provides audit and assurance, consulting, financial advisory, risk advisory, tax, and related services to public and private clients spanning multiple industries. Deloitte serves four out of five Fortune Global 500® companies through a globally connected network of member firms in more than 150 countries and territories bringing world-class capabilities, insights, and service to address clients' most complex business challenges. Deloitte LLP, an Ontario limited liability partnership, is the Canadian member firm of Deloitte Touche Tohmatsu Limited. Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee, and its network of member firms, each of which is a legally separate and independent entity. Please see www.deloitte.com/about for a detailed description of the legal structure of Deloitte Touche Tohmatsu Limited and its member firms.

Our global Purpose is making an impact that matters. At Deloitte Canada, that translates into building a better future by accelerating and expanding access to knowledge. We believe we can achieve this Purpose by living our shared values to lead the way, serve with integrity, take care of each other, foster inclusion, and collaborate for measurable impact.

To learn more about how Deloitte's approximately 312,000 professionals, over 12,000 of whom are part of the Canadian firm, please connect with us on LinkedIn, Twitter, Instagram, or Facebook.

© Deloitte LLP and affiliated entities.