Cognizant

Digital Business

The Insurance AI Imperative

The insurance industry – from product development to underwriting to claims – is being fundamentally transformed by AI technologies. Although some companies are investing aggressively in AI to slash costs while also enhancing the customer experience, most insurers will need to accelerate their efforts or risk discovering that it has become too late to catch up.

Executive Summary

Artificial intelligence is disrupting every step in the insurance value chain, including chatbots that deliver customized product recommendations and manage customer service inquiries; underwriting that occurs in minutes by analyzing a broader array of external data sources; and automated claims processing that analyzes images of damage provided by the policy holder or by drones. Meanwhile, insurtechs are leveraging AI capabilities to introduce a new range of innovative products such as instantly customizable life insurance and on-demand property coverage.

While some major insurance companies are investing aggressively in AI, most insurers are moving slowly, unsure how best to deploy these technologies. In our 2018 AI survey, only 51% of insurance executives said that AI technologies were extremely or very important to their company's success today, which was lower than for any other industry.[1]

Insurers need to pick up the pace of investment in AI or they will be left behind. In this process, they can benefit by considering the following guidelines:

▌ **Cast a wide net.** Insurers should assess each aspect of their organizations to identify how best to deploy AI. Rather than being a technology issue, the effort should begin with the company's business needs and opportunities and where AI can generate business value.

▌ **Look for opportunities to leverage data.** For each business process, insurers need to identify the data required to take advantage of AI, including data from external sources such as wearables and from connected devices in the Internet of Things (IoT). Most insurers will need to develop stronger data governance to ensure they have access to accurate, timely data.

▌ **Acquire AI expertise.** Additional AI skills will be required through a combination of hiring additional talent, partnering with third-party experts and partnering with, or even acquiring, insurtech start-ups.

▎ Encourage experimentation – and discipline. Insurers must develop a tolerance for experimentation but combine that with rigorous measurement of ROI so that failures can be terminated quickly and successful pilots can be moved into full implementation.

▎ Prepare business processes for digitization. Layering an AI solution on top of a poorly designed process will squander its potential. Insurers should first optimize the business process through such approaches as system changes, standardization and consolidation of fragmented systems.

▎ Design responsible AI. Applications that make inappropriate or biased decisions can inflict significant reputational damage and loss of shareholder value. Yet, in our AI study, only 41% of insurance executives said ethical considerations play a critical or significant role at their companies when they develop or employ AI applications. Just as they have ethics officers, insurers will need to establish AI ethics policies and procedures to ensure their applications are designed ethically and continue to operate appropriately as they learn and adapt over time.

Making the transition to an AI future is no longer optional. The market won't be kind to companies that choose to sit on the sidelines and wait until the path forward comes into focus. To remain relevant, insurers will need to move quickly to infuse AI throughout their strategy and operations. Those that don't may discover that it is too late to catch up with their more forward-looking competitors.

On the precipice of disruptive change

AI technologies such as machine learning (ML), neural networks, natural language processing (NLP) and computer vision are poised to reimagine the entire insurance lifecycle from customer acquisition to claims processing. These technologies can handle an ever-expanding range of tasks more quickly and accurately than humans, while freeing employees to focus on more complex and higher-value activities.

Many insurers have been slow to recognize the fundamental transformation underway. As mentioned above, in our 2018 AI study of executives in the U.S. and Europe, only 51% of insurance executives considered AI technologies to be extremely or very important to their company's success today, the lowest percentage of any industry (see Figure 1, page 6). Looking ahead three years, only 36% of insurance executives felt AI would be very important, which was again lower than for any other industry.

Consistent with this lukewarm assessment of AI's importance, only 68% of insurance executives said they were familiar with an AI project at their company and, among this group, only 18% were familiar with an AI project that was fully implemented.

AI is combining with three trends that are changing the face of the industry: an explosion of data, the entrance of nontraditional competitors and the rise of ecosystems.
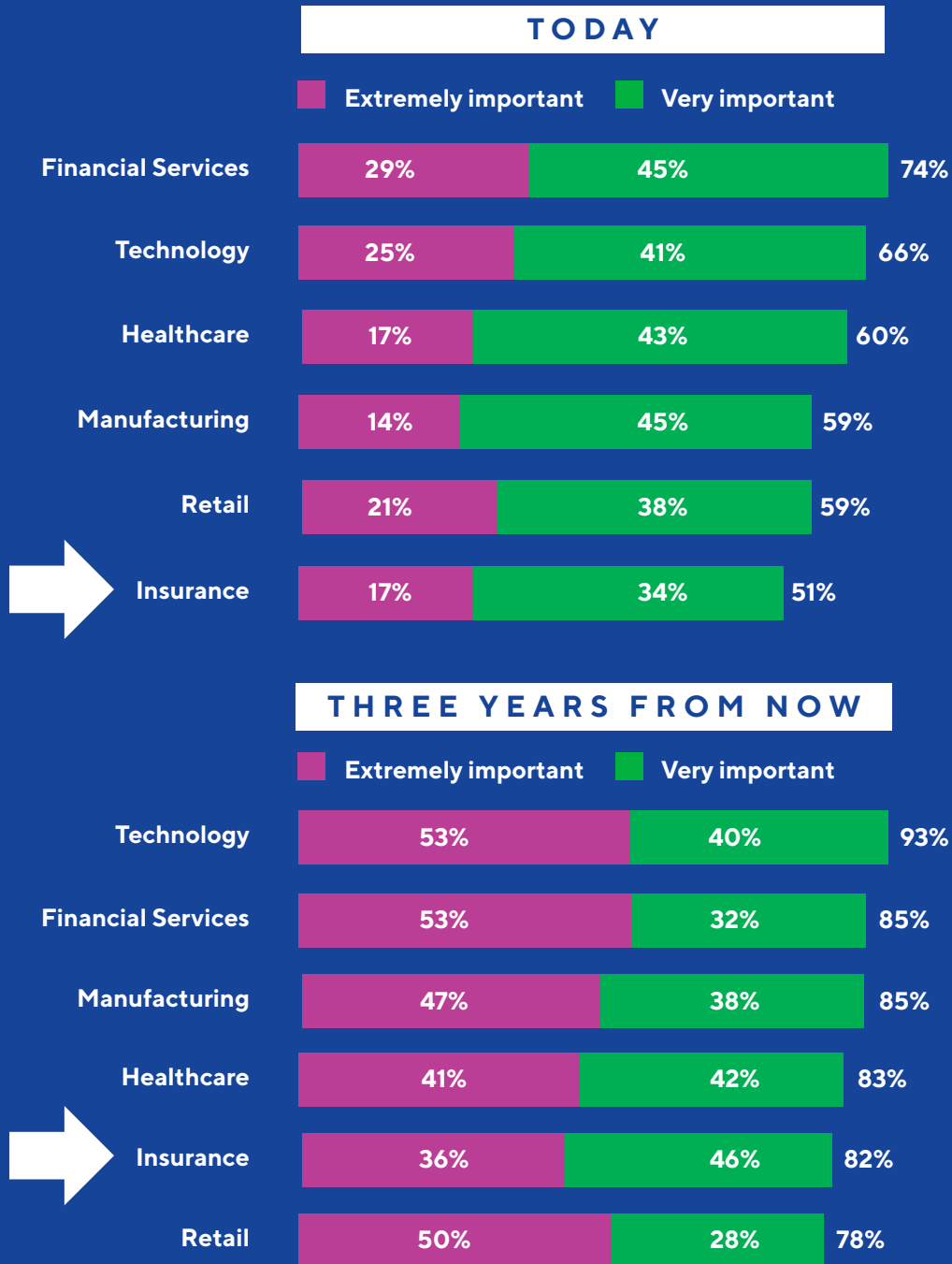
Data explosion

Insurers now have the opportunity to gain actionable insights from a proliferating variety of new data sources, such as fitness trackers, drones, smart home appliances and telematics in automobiles. These data sources are improving underwriting and claims processing, as well as enabling products where customers agree to share their data with providers in exchange for improved service or lower premiums. One study found that 80% of consumers across 11 countries said they would be willing to share more personal data with companies in exchange for rewards.[2]

Innovative carriers are taking advantage of this trend. Progressive Insurance is applying ML to the 14 billion miles of driving data it has collected to improve its predictive modeling, while offering discounts to customers who agree to provide their driving data.[3]

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Importance of AI technologies to company success

TODAY

■ Extremely important   **■ Very important**

Financial Services	29% / 45%	74%
Technology	25% / 41%	66%
Healthcare	17% / 43%	60%
Manufacturing	14% / 45%	59%
Retail	21% / 38%	59%
→ **Insurance**	17% / 34%	51%

THREE YEARS FROM NOW

■ Extremely important   **■ Very important**

Technology	53% / 40%	93%
Financial Services	53% / 32%	85%
Manufacturing	47% / 38%	85%
Healthcare	41% / 42%	83%
→ **Insurance**	36% / 46%	82%
Retail	50% / 28%	78%

Response base: 50 insurance executives
Source: Cognizant
Figure 1

Nontraditional competitors at the gates

Traditional insurers are facing new competition from insurtechs, which leverage advanced technologies to introduce innovative products. McKinsey estimates there are now 1,500 insurtechs globally, with 38% headquartered in the U.S.[4]

Many insurtechs are leveraging AI technologies to slash costs, speed response times and improve customer service. Life insurer Ladder, for example, offers flexible policies that allow customers to change the size of their policy instantly online, rather than having to cancel and reapply for a new policy.[5]

Although insurtechs are demonstrating what AI technologies make possible, they are typically undercapitalized and lack strong brands. But technology giants, like Amazon and Google, are also eyeing insurance markets. These major players bring assets that insurtech start-ups lack: strong balance sheets, well-known brands and a large base of loyal customers.

Amazon has applied to become an insurance agent in India, selling life, health and general insurance, while also investing $12 million in Acko, an Indian insurtech start-up.[6] In October 2018, the company formed a partnership with The Travelers Companies to create a "digital storefront" in the U.S. that will offer customers smart home kits and risk management information. Amazon is also reportedly discussing with major European insurance companies its willingness to offer its products through an insurance comparison site in the UK.[7]

Google has purchased a minority stake in Applied Systems, a provider of technology solutions to insurance agencies, and has said it is scouting for additional investment opportunities in insurance technology companies.[8]

There are indications that consumers would be receptive to purchasing insurance from a major technology firm. A 2018 survey by J.D. Power found that 20% of consumers would be willing to obtain their homeowners insurance from either Amazon or Google, with millennials even more open to the idea.[9]

Rise of ecosystems

Technology companies are creating ecosystems that will define the rules of competition in a broad range of markets including insurance. Ecosystems consist of a platform with core components provided by the owner that are extended by applications devised by independent companies to offer new products or services to end users. Ecosystems are arising in a variety of areas relevant to insurance such as housing, healthcare, financial planning and personal mobility. Learning how to compete on these ecosystems will be a new experience for insurance companies.

Insurers could also aspire to manage ecosystems themselves. For example, the Chinese insurer Ping An has developed deep relationships with more than 350 million customers by providing a range of services through its web portal One Account that includes auto sales, real estate listings and banking services.[10] Ping An's ecosystem has helped it become the second strongest brand in insurance according to Brand Finance and is ranked 10 on the Forbes Global 2000 list.[11]

Building tomorrow's insurance company today

AI will require insurers to rethink every facet of their organizations, from front office to back office. Many of the operational tasks performed in an insurance company each day are repetitive, manual tasks using structured data that are susceptible to automation, thus slashing costs. Beyond reducing costs, AI applications will enhance the customer experience by providing personalized product recommendations, rapid underwriting and quick resolution of claims.

Enhancing the customer experience

Most insurers have focused on customer service in their AI projects to automatically capture customer information and respond to inquiries. In our survey, insurance executives who were familiar with AI projects at their companies most often cited a customer service AI project (56%).

AI tools allow customers to provide information to a chatbot and quickly receive personalized product recommendations and quotes. Consumers and small-to-medium sized businesses will be able to purchase most insurance products online in minutes, aided by AI tools that provide instant underwriting and pricing based on automated analysis of a customer's profile, pulling in relevant third-party data sources. Amelia, IPsoft's virtual agent, is used at insurers such as MetLife and Credit Suisse to combine ML with NLP to make decisions based on real-time conversations.[12]

Human agents will be available for additional advice, supported throughout the process by AI tools that analyze the customer's financial profile. Call-center representatives can even receive coaching tips from AI tools that assess the sentiment and mood of a caller while a call is in progress. (See Quick Take on page 10.)

Faster, more accurate underwriting

AI technologies can now be applied to a wider variety of data sources to improve the accuracy of risk assessments and quotes. For example, these tools can automatically analyze real-time data from security systems or from flyovers using drones when underwriting homeowner-insurance applications. Analysis of telematic data can provide insight into driving behavior such as how fast the customer drives on average,

how quickly they accelerate, whether they drive faster than the speed limit, etc. Zurich Insurance Group has partnered with the Swedish insurtech Greater Than to allow it to analyze a potential customer's individual driving data compared to a set of reference profiles created from more than a decade's-worth of collected data, allowing the company to customize the premium based on the individual customer's driving behavior.[13]

Half of all U.S. consumers say they would be more likely to purchase life insurance if it was priced without a physical exam, and Haven Life, a subsidiary of MassMutual, is providing that option.[14] The company uses ML applied to third-party data such as prescription and driving records to offer real-time underwriting, allowing customers to buy life insurance online in just minutes without a medical exam.[15]

Reimagining claims processing

AI will allow the processing of most personal and small business claims to be automated, substantially reducing operating costs. For example, U.S. insurers Allstate and Farmers use image recognition software or computer vision to settle auto claims without the need for a visit from an adjustor.[16] Home sensors, drones and smart devices will often generate a first notice of loss (FNOL) before the customer needs to contact the insurer. Rather than address straightforward claims, adjusters will concentrate on analyzing complex claims and investigating potential instances of fraud.

Quick Take

Customer care done right with real-time AI

We worked with a leading global property and casualty (P&C) insurer to apply AI capabilities to improve the customer experience during the process of filing a claim with the call-center staff. The insurer was experiencing extremely high call volumes of roughly 8,000 a month. Although the calls were recorded by its third-party call-center software, it had the personnel to review only about 40, and didn't know whether these were truly representative of its entire workload. Even more important, this after-the-fact analysis couldn't advise customer-service representatives in real time on how to quickly provide key information or how best to serve a customer who is upset and worried after a loss.

Using IBM's Watson, we analyzed customer sentiment during calls virtually in real time and designed analytics to help the representatives gauge caller sentiment, as well as providing prompts for them to respond with empathy – with questions and information relevant to a customer's situation.

Real-time recordings were translated into text. Then Watson was taught how to recognize common call elements and the steps on the insurer's call checklist. We then customized the solution to the P&C insurance sector, incorporating into the lexicon terms specific to our client's business. A dashboard was created that showed agents how to proceed correctly through a call. With speech analytics applied to calls as they happen, the checklist automatically updates to show which tasks have been performed and which remain.

Supervisors can now monitor all 8,000 monthly calls while slashing the review time by as much as 40%. By applying language analytics to the caller's diction, word choice and tone, agents can better gauge the sentiment of a caller and receive deeper insights from real-time personality profiling and conversation cues. The results are expected to be shorter calls and improved customer satisfaction.

Quick Take

AI-powered underwriting of flood insurance

One global reinsurer client sought an accurate assessment of the risk of reinsuring specific tranches of flood insurance coverage for its clients and the ability to model risk factors by geography down to the zip code level. We employed an intelligent algorithmic process to analyze government flood hazard maps, as well as publicly available census and housing data, and overlaid this information with our client's internal database of historical claims.

The results of the analysis were captured in a dashboard with visualizations. By using NLP to analyze digitized documents and combining this information with geospatial data on flooding, our client can more accurately assess the frequency and severity of flood risk by geography, and drill down to assign risk scores to individual homes or businesses. The solution generated a 10–fold reduction in underwriting throughput time and aims to improve acceptance rates by 25%. We have worked with the client to apply similar solutions to evaluate risk in portfolios of policies for life and health insurers, and to assess risks in the automobile insurance marketplace.

These tools will help reduce claims leakage – the difference between what is paid out on a claim plus expenses and what should have been paid plus expenses if best practices had been followed – which is commonly believed to be about 5-10% of total U.S. P&C personal auto and home claims paid each year. [17] AI technologies allow insurers to automatically audit thousands of open claims when action can still be taken, rather than being content with reviews of a sample of claims after they have closed.

Insurers will be able to move beyond the traditional reactive model of paying claims after a loss to adopt a proactive, preventive model of helping customers avoid losses in the first place. Commercial property insurers can use data generated by smart buildings to help their customers reduce the risk of fire or water damage. Data generated by telematics in vehicles can allow auto insurers to provide customers with feedback on their driving behavior.

Some companies are taking innovative approaches to leverage AI to make claims processing a key part of the customer value proposition. The insurtech start-up Lemonade, which provides renters and homeowners insurance, leverages AI and behavioral economics to approve claims in minutes rather than days, while keeping service costs low.

Crafting an AI strategy

Many insurance companies are moving slowly to implement AI solutions, unsure what investments to make in an environment where technology evolves rapidly. The lack of strategic focus is illustrated by the fact that our survey found roughly the same percentages of insurance executives who said they were using each of a series of specific AI technologies in their projects: computer vision (44%), analysis of natural language (44%), virtual agents (41%), advice engines/ ML (35%) and smart robotics/autonomous vehicles (35%). This suggests that insurers are not yet at the point of understanding which technologies can provide the greatest benefits to the business.

Creating an effective AI strategy should start with the company's business needs and opportunities rather than with the technology's capabilities. Executives in the lines of business should play a leading role in this effort, but many insurance companies find this difficult to achieve. One of the highest-rated challenges in employing AI applications was securing buy-in by businesses, which was rated as extremely or very challenging by 44% of insurance executives in our survey (see Figure 2, next page).

AI's key obstacles

Percentage of insurance executives who found AI extremely or very challenging to employ

Obstacle	Percentage
Access to accurate/timely data	54%
Retraining employees whose job responsibilities have been changed or eliminated by AI	48%
Securing talent	46%
Securing buy-in by businesses	44%
Time required for generating benefits	44%
Attracting and retaining professionals with appropriate experience and skills	44%
Ability of employees to interact effectively with AI applications	42%
Interactions between different AI applications	42%
Securing senior management commitment	40%
Measuring impacts	40%
Monitoring and addressing potential instances of unethical behavior, such as bias, in AI applications	36%
Developing legal contracts that address the risk that AI applications could make or support decisions with negative impacts on customers	36%
Securing adequate budget	35%

Response base: 50 insurance executives

Source: Cognizant

Figure 2

Although each company's situation is unique, the following are helpful guidelines for developing an AI plan.

▌ **Cast a wide net.** Insurers should conduct a comprehensive examination of their business processes to identify where AI technologies can be applied, the potential benefits, the investment and time required to achieve them, and the technical and human capabilities required. There is no recipe for leveraging the potential of AI. Each business challenge requires different AI technologies, techniques and approaches. To ensure the underlying algorithms in AI technologies "understand" the business context in which they operate, cross-functional teams should be established to identify potential AI-enabled improvements to processes and products.

▌ **Look for opportunities to leverage data.** As insurers assess how AI can be applied, they need to identify what data is required for each business process to operate optimally. Generating value from AI depends on access to accurate data, which is a challenge for many insurers. Having access to accurate and timely data was the AI issue most often rated by insurance executives as extremely or very challenging out of 13 potential obstacles to employing AI (see Figure 2, previous page). Stronger data governance will be required to address fragmented data architectures that are plagued by multiple legacy administrative systems and databases, often the result of growth through a series of acquisitions. In addition, insurers will need to gain experience in leveraging external data generated by the explosion of IoT-connected devices.

▌ **Acquire AI expertise.** Access to experience and skills with rapidly developing AI technologies is essential. In our survey, 46% of insurance executives said that securing talent was extremely or very challenging for their company's AI efforts (Figure 2). In addition to hiring talent, more insurers are partnering with or acquiring insurtech start-ups. For example, Allianz has invested in the digital insurer Lemonade, MassMutual has launched the insurtech start-up Haven Life (mentioned above), and Aviva Canada has created its InsurTech Growth Program to work with innovative start-ups.[18]

▌ **Encourage experimentation – and discipline.** There are no ready-made, turnkey AI solutions, and each insurer will need to chart its own path forward. For this reason, managed experimentation will be key. Insurers will need an increased tolerance for risk-taking and innovation, and balance that with rigorous testing and measurement of ROI and tangible business value. It will be important to quickly identify and terminate failures, while moving successful pilot projects into full production.

▌ **Prepare business processes for digitization.** Applying AI technologies to a poorly designed, fragmented business process will lead to disappointing results. Insurers should consider first optimizing processes through such approaches as system changes, standardization and consolidation. In some cases, insurers will need to integrate fragmented systems that have resulted through a series of mergers and acquisitions – for example, by using a business-process-as-a-service (BPaaS) solution.

Although some consumers have been nervous about interacting with AI systems, as these technologies become more familiar, their attitudes are becoming more positive.

Designing responsible AI

To capture the full potential of AI, people must trust it as a responsible partner. AI applications will interact with customers, employees and partners, running business processes and making important decisions. Although some consumers have been nervous about interacting with AI systems, as these technologies become more familiar, their attitudes are becoming more positive. In a global survey by the IoT solutions provider ARM, of consumers who knew at least something about AI, 61% believed it would make society better, compared to 22% who thought it would make it worse.[19]

If AI applications are not well designed and managed, however, they could end up making inappropriate, or even unethical, decisions, imperiling customer relationships and damaging the company's reputation and brand. The right governance structures are required to guide the design and use of AI applications and to establish a process for monitoring and correcting AI behavior. To that end, insurers should consider establishing an AI council to oversee their AI applications.

Building trust will require transparency – i.e., allowing people to understand how an AI application has made its decisions. AI systems tend to be "black boxes" whose operations are opaque and make people uncomfortable.

Providing transparency will also be essential to complying with regulatory requirements such as the European Union's General Data Protection Regulation (GDPR), which applies to all companies wherever headquartered that have access to the personal data of EU citizens. GDPR gives consumers the right to require an explanation of any decisions taken by AI applications that affect them. This can be difficult with ML applications, which are not explicitly programmed and where it may not be clear why a decision was made. Insurers will need to build in the ability to drill down into an AI decision to understand which factors triggered it.

Insurers must also establish policies and procedures to ensure their AI applications are acting ethically. This not only means designing ethical AI systems but also ensuring they continue to operate in ways that are consistent with corporate and societal values. For example, AI applications that learn from historical underwriting decisions could pick up gender or racial biases hidden in the data. Ethics will become more important as AI becomes more ubiquitous and as ML applications increasingly "learn" from other AI applications, rather than from human input.

Many insurance companies have not yet recognized the critical role of ethics in the success of AI. In our survey, only 41% of insurance executives said that ethical considerations play a critical or significant role when their company develops or employs AI applications. Every company has an ethics officer for human decisions, and they will need to devote the same attention to the ethics of the decisions that are now being turned over to AI systems.

Unless AI is seen to be responsible, it won't be accepted by customers or embraced by employees. Given the significant reputational damage and loss of shareholder value that can result from instances of inappropriate or biased AI decisions, ensuring that AI applications operate ethically will need to be a key element in an insurer's AI strategy.

At one time, we may have asked if a task was handled by a machine or a human. In the near future, that distinction will become obsolete.

The way forward

AI is a disruptive force that will change insurance as we know it. Rather than a technology issue, AI will become central to business strategy, encompassing both the products offered and the customer experience delivered.

Executives in the lines of business should lead the effort to assess how AI can generate business value and increase ROI in business processes across the organization. An experimentation mindset will be essential, as well as a tolerance for failure and risk-taking. Experiments that fail should be jettisoned quickly, while successful pilot projects should be quickly scaled up into full implementation.

As AI systems take over many of the activities and decisions currently handled by humans, the impacts on the organization will be far-reaching and change management will be essential. As less complex tasks and decisions are increasingly taken over by AI applications, employees will shift to activities that are more complex and provide greater value. Companies need to be ready to retrain their staff to provide them with the skills needed for these higher-level responsibilities.

There will also need to be an important cultural transformation. At one time, we may have asked if a task was handled by a machine or a human. In the near future, that distinction will become obsolete. Humans will need to become comfortable working side by side with AI robots. As employees concentrate on higher-value-added activities, such as complex issues or sensitive human interactions, they will rely on advice from AI applications that identify unnoticed patterns in data, analyze customer profiles or even assess a customer's mood in real time during a call. For such complex situations, insurers will find that a combination of human intelligence plus AI is more powerful than either on its own.

AI is driving changes that will soon make insurance virtually unrecognizable. Unless they move quickly, some insurers might soon find they are no longer competitive in the AI-powered insurance environment now emerging.

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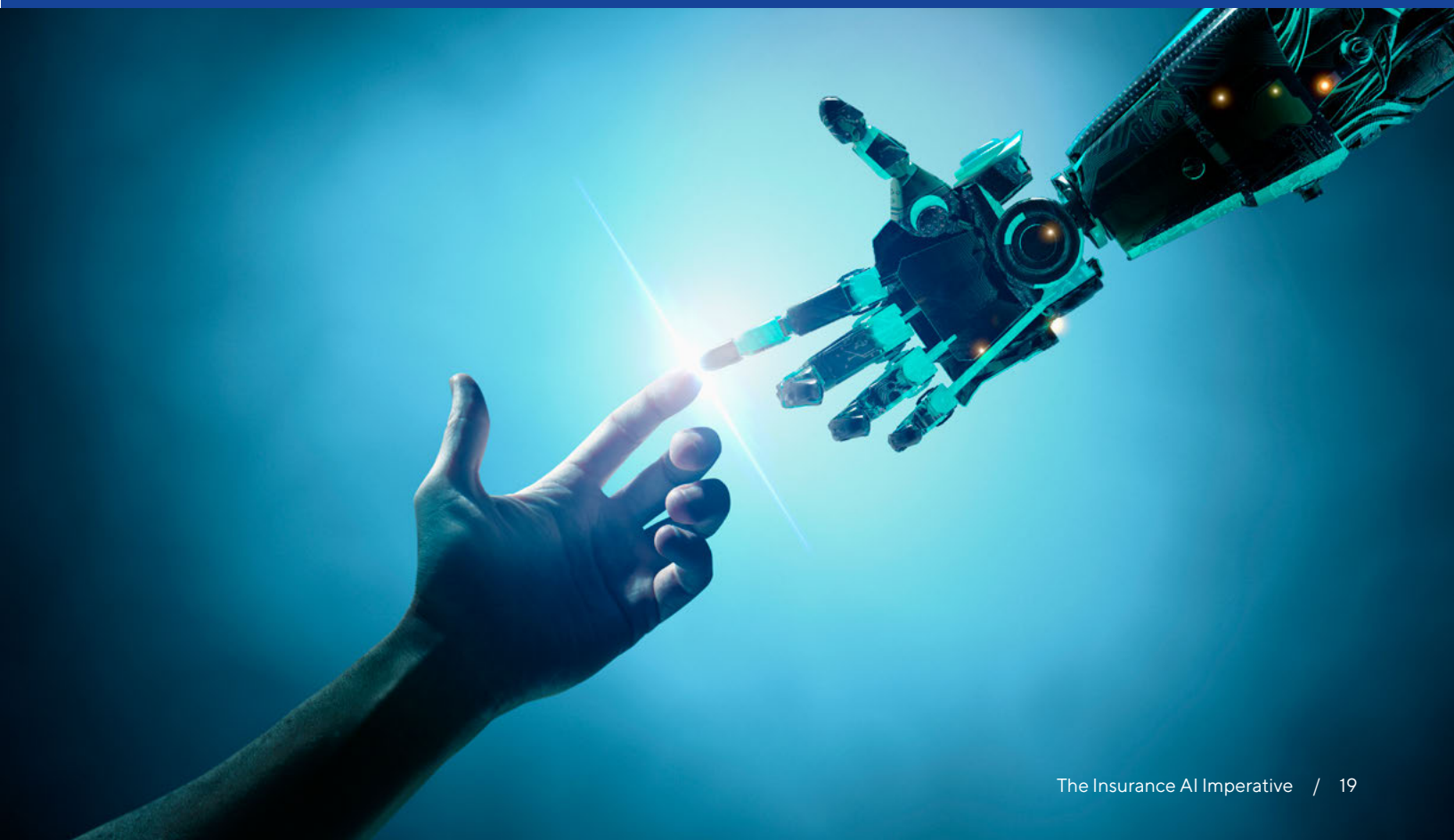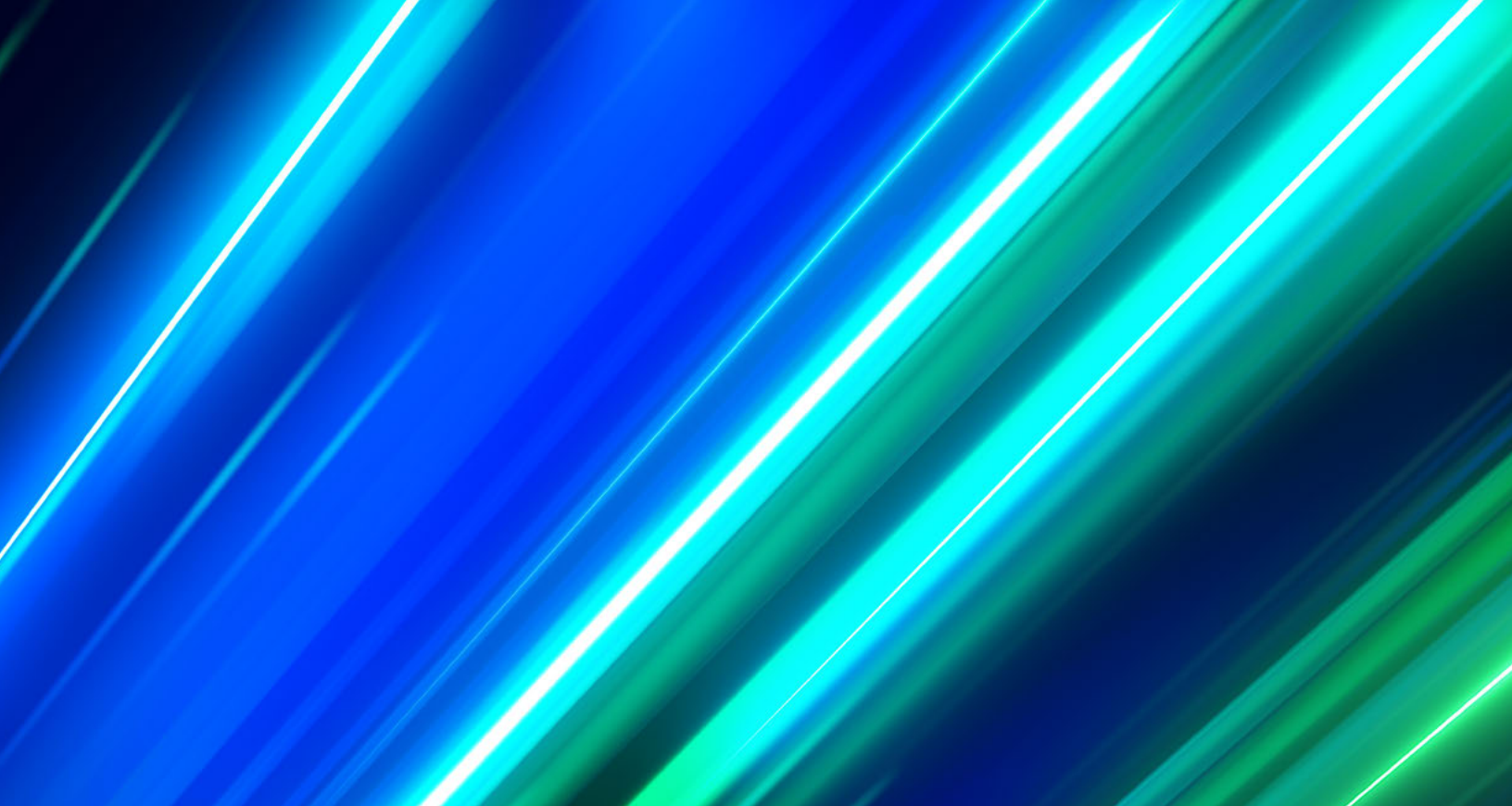
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Cognizant Digital Business helps our clients imagine and build the Digital Economy. We do this by bringing together human insight, digital strategy, industry knowledge, design, and new technologies to create new experiences and launch new business models. For more information, please visit www.cognizant.com/digital or join the conversation on LinkedIn.

About Cognizant

Cognizant (Nasdaq-100: CTSH) is one of the world's leading professional services companies, transforming clients' business, operating and technology models for the digital era. Our unique industry-based, consultative approach helps clients envision, build and run more innovative and efficient businesses. Headquartered in the U.S., Cognizant is ranked 195 on the Fortune 500 and is consistently listed among the most admired companies in the world. Learn how Cognizant helps clients lead with digital at www.cognizant.com or follow us @Cognizant.

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