DIGITAL OUTLOOK
INSURANCE INDUSTRY

Infosys®

INTRODUCTION

Sometime during the middle of last year, more than 100 insurance company CEOs were asked for their views on what lay ahead. Their response was quite unexpected. Here were the leaders of an industry, much maligned as a trend-laggard, talking about the bounty of technology disruption – 61 percent said it was an opportunity, not a threat – and of taking personal responsibility for ensuring their customers' interests were met. Seven out of 10 CEOs confirmed plans to invest in digital infrastructure within the next three years.

This positivity stands out sharply against the current environment of economic and political uncertainty that the industry finds itself in. But the insurance sector has the right to be optimistic because of its recent efforts to transform itself for the digital age. At the same time, it is well aware that new technologies and business models will bring new risks.

How do insurance companies plan to steer through these waters in the coming years? What are their areas of focus? What do they expect from various digital technologies over the next three years?

As the technology partner of some of the biggest insurance companies globally, we were keenly interested in the answers. Hence late last year, Infosys commissioned a survey of 1,000 senior decision makers from business and IT, from large organizations (with 1,000 employees or more and annual revenue of at least US$500 million) in nine industries, including 109 respondents from the insurance industry to hear their views on the digital technology trends that would make the greatest impact on their business over the next three years.

While identifying the key digital technology trends was the most important objective of the study, it was not the only one. The survey also sought to understand which digital technologies were in use within insurance companies and the broad purpose for which they had been deployed – improve existing operations, solve new problems, or create new opportunities. Another objective of the research was to ascertain, optimism apart, how ready these organizations really were to take advantage of the favorable digital technology trends of 2018 and beyond.

Finally, the study reviewed these findings against current and immediate investments in digital technologies to understand where the insurance industry was putting its resources.

The research findings were supplemented with our own perspective on the insurance sector and anecdotes about the happenings in the industry to produce this short but incisive report.

EXECUTIVE SUMMARY

- According to the insurance companies surveyed, big data for customer insight and wallet share (50 percent), cyber security for data protection and compliance (50 percent), AI for underwriting automation (48 percent), and technology for business rules extraction (48 percent) are the most commonly reported trends for the next three years which will make a positive impact on their organization.

- Cyber security (66 percent), big data analytics (65 percent), enterprise cloud (58 percent), and artificial intelligence (AI) (45 percent) are the four digital technologies being utilized the most by insurance companies today.

- Insurance providers plan to invest in digital technologies in the coming 12 months. Cyber security and gamification have received investments from the most respondents' companies (74 percent each). Sixty-three percent of the respondent organizations have invested in big data and 56 percent in AI.

- A majority of the respondents (86 percent) said that their organization could improve both existing skills and technologies in preparation for implementing the top trends of the next three years; budget was a problem for 56 percent of the companies in the survey.

TOP INSURANCE TRENDS FOR THE NEXT THREE YEARS

1 BIG DATA ANALYTICS

2 CYBER SECURITY

3 AI AND AUTOMATION

Respondents mentioned a number of influential digital trends, from using blockchain to create smart insurance contracts and AI for detecting fraudulent claims to measuring and mitigating risk in the Internet of Things (IoT). When asked to name the trends with the greatest positive impact on the organization in the next three years, the insurance respondents mentioned the following (only those named by 30 percent or more are listed below, not showing the four most commonly chosen):

a. Turning to the IoT for measuring and mitigating risk. Insurers are expanding the horizons of actuarial science to include data from automotive sensors, wearable fitness trackers, and telematic devices to assess risk and reduce fraud.

b. Using AI for compliance risk management, and predicting and preventing deviations. Machine learning systems are monitoring the activities of advisors and agents to pick out those likely to violate compliance norms.

c. Prevention of fraudulent claims using AI and analytics. Algorithms are studying data patterns in insurance claims to identify the wrong ones.

d. Using gamification to educate and encourage right insurance buying behavior. Insurers are using gamification to catch the attention of young people, who are usually not thinking about buying insurance at their age. One insurer has an app that requires participants to show what they know about investment planning. Another insurer, which incorporated gamification principles into its usage-based auto insurance model, has enrolled more than four million customers aged 17 to 25.

e. Use of blockchain technology for smart contracts between insurers, reinsurers, and the insured. Insurance companies are exploring several use cases of blockchain, including claims processing, by joining consortiums doing research in this area.

On average, each respondent from insurance companies put four trends in the list of what would make a significant positive impact on their organization in the next three years. Of these, the four trends receiving most mentions – cited by 50, 50, 48, and 48 percent of the respondents, respectively, as making a positive impact on the business – suggest that the industry had both the opportunities and pitfalls of digital technology on its mind.

Using big data for gaining complete insights into customers as well as wallet share, and using cyber security solutions to protect customer data and improve compliance, were jointly the most important digital technology trends for the next three years, receiving a mention from 50 percent of the respondents.

Using AI technologies for automating underwriting (and using new underwriting software) was the joint third most commonly reported trend, and was on the list of 48 percent of the respondents.

Which of the following trends will have the most positive impact on your organization within the next three years?

Use of big data for 360-degree view of customer and to increase wallet share	**50%**
Use of cyber security technologies to protect customer data and meet compliance mandates	**50%**
Intelligent automation of underwriting with AI technologies or new underwriting software	**48%**
Investing in technology for business rules extraction to identify and extract business logic embedded in legacy code	**48%**
Internet of Things for risk measurement and mitigation	**46%**
Use of AI for compliance risk management and to predict/prevent possible deviations	**45%**

Prevention of fraudulent claims using AI and analytics	**38%**
Gamification by insurers to educate and encourage insurance buying behavior	**36%**
Use of blockchain technology for smart contracts between insurers, reinsurers, and the insured	**36%**
Use of drones to settle claims more accurately	**17%**
Don't know	**1%**
Average number of trends that will have a positive impact on respondents' organizations within the next three years	**4**

A little more about these most commonly reported trends follows.

1 Big data analytics, to understand customers better

A leading IT and telecommunications research and advisory firm estimated global big data and business analytics spending at about US$151 billion in 2017. The financial services sector, including insurance, was among the top investors in these technologies.

The insurance industry will no doubt seek to dedicate some of its big data investments to sharpen customer focus and deepen its understanding of customer needs and behavior. Insurers can analyze a variety of data, gathered from channels including email, call center, and social media, and third party sources like Experian, Argus, and Judy Diamond, to build unique 360-degree customer profiles. They can also use big data insights to anticipate future needs, devise personalized offerings, and predict churn.

Beyond that, insurance companies can dramatically change customer engagement by tracking data such as driving habits and fitness routines in real-time, and linking auto and health insurance premium to such behaviors. Property insurance companies are using data from smart homes – for example, occupancy based on motion sensor data, and appliance usage patterns – to refine assessment of property claim risk.

2 Cyber security, to protect data and ensure compliance

Risk of cyber attack is the downside of digitalization, and our survey shows that improving cyber security is a top priority for organizations in all industries. But the fate of no other industry is as intertwined with cyber security as insurance. With the rapidly growing market for cyber insurance expected to reach US$14 billion by 2022, insurers need to quickly perfect their risk assessment and pricing models in this new area to take advantage of the opportunity. At the same time, they need to protect their own organizations against a breach. Surprisingly, insurance companies are not entirely geared for the latter: fewer than 20 percent of the insurance company CEOs believe they are fully prepared to face an attack.

These concerns were evident in our survey as well, with the respondents naming cyber security for protecting customer data (given that so much is on the cloud) and meeting compliance mandates the

top digital technology trend for the next three years, along with big data. Detailed conversations with some respondents yielded opinions such as "the use of cyber security technologies is a past trend, it's table stakes" and "who would go to a company when they know the data might be stolen?"

This is not to say that the industry has neglected cyber security; most companies have bolstered their defenses over the past few years. However, they need to make certain improvements to become fully secure, such as tightening basic security measures – implementing security patches regularly, controlling access to data, conducting drills, etc. – unifying security practices throughout the enterprise, and building their ability to respond and recover in the event of an attack. Surely most insurers will be looking to plug these gaps in 2018 and beyond.

3 AI, to automate underwriting

An Oxford University study of jobs at highest risk of automation placed insurance underwriting fifth in a field of 702.

A few years ago it would have been unthinkable that this complex profession would be taken over by machines. Yet, thanks to advances in AI, one of the hottest areas in "insurtech", this is looking more likely. One startup is showcasing the use of drone technology in agricultural insurance by mapping terrain in 3D and determining the health of crops from the air. Another firm has devised a way to predict how long a person will live using the selfie: an AI-based solution analyzes photographs and deduces things such as the rate of ageing, body mass index, lifestyle habits, etc. The company claims it is faster and more accurate than traditional underwriting.

There are other advantages as well. AI can access customers' social profiles for information, which is less intrusive than sending an agent out with a questionnaire. It can also analyze a lot more data than humans can, to produce a granular risk profile that insurers can use to pitch the right amount of insurance at the right price to every customer.

While the possibility of using AI for underwriting is real enough to warrant its inclusion among the top trends of the next three years, it has some way to go before becoming reality. At the current level of evolution, algorithms need to be supervised and they will continue to be trained by human beings for some time to come.

DIGITAL TECHNOLOGIES THAT INSURANCE PROVIDERS USE – CYBER SECURITY, BIG DATA ANALYTICS, ENTERPRISE CLOUD, AND AI

Insurance companies use about five digital technologies on average. The most deployed technologies in the industry are cyber security, big data analytics, enterprise cloud, and AI, in use at 66, 65, 58, and 45 percent of organizations, respectively.

Which of the following digital technologies does your organization currently utilize?

Cyber security	**66%**
Big data analytics	**65%**
Enterprise cloud	**58%**
AI (machine learning, deep learning, natural language processing, natural language generation, and visual recognition)	**45%**
Dev-ops and agile	**42%**
Business process management solutions	**41%**
APIs	**40%**
3D printing	**39%**
ERP and enterprise application implementation/modernization	**37%**
Blockchain	**35%**
Enterprise service management solutions	**32%**
Internet of Things	**28%**
Mainframe modernization	**17%**

For the insurance companies participating in the survey, the most important purpose of implementing all these technologies was to improve existing business operations, but a substantial number were also looking to solve new business problems. A solid 56 percent of the respondents said they had deployed big data analytics to create new opportunities.

When the following areas of digital technologies and solutions were implemented within your organization, was it to improve existing business operations, solve new kinds of business problems, or create new opportunities?

	Improve existing business operations	Solve new business problems	Create new opportunities	Don't know	None of these
3D printing	71%	38%	40%	-	-
AI (machine learning, deep learning, natural language processing, natural language generation, and visual recognition)	63%	53%	43%	-	-
APIs	73%	43%	30%	-	-
Big data analytics	63%	41%	56%	-	-
Blockchain	50%	47%	47%	-	-
Business process management solutions	62%	51%	16%	-	-
Cyber security	60%	54%	25%	-	1%
Dev-ops and agile	65%	46%	46%	2%	-
Enterprise cloud	75%	43%	32%	2%	2%
Enterprise service management solutions	69%	49%	29%	-	-
ERP and enterprise application implementation/modernization	63%	55%	40%	-	-
Internet of Things	57%	47%	63%	-	-
Mainframe modernization	79%	32%	21%	-	-

WHERE INSURANCE COMPANIES ARE INVESTING – IN THE SAME TECHNOLOGIES DRIVING THE TRENDS

Insurance providers plan to invest in digital technologies in the coming 12 months. Where is this money headed? Are insurers investing in disruptive technologies to achieve radically new outcomes or only in tried and tested solutions to make the business more efficient than before?

More importantly, are the investments aligned with the trends deemed most significant in the next three years? To understand this, the survey asked the respondents whether they were investigating or investing in the top four trends they had named as having the most impact on their organization in the next three years. Here are the findings.

Insurance organizations were clearly putting money into the trends they thought would be most significant to their business in 2018 and beyond. In fact, the majority had already invested, and the remaining few had plans to do so. Seventy-four

percent of the respondents, who believe at least one trend will have a positive impact on their organization, said their company had invested in cyber security; 63 percent said the same about big data. More than half (56 percent) had already invested in automating underwriting using AI, whereas it was on the cards for 39 percent.

A somewhat surprising finding was the number of insurers who had invested in gamification. At 74 percent, it equaled the investment penetration of cyber security.

Each of the other technologies under consideration had been invested in by about half the organizations who cite these trends as the ones which will have an impact.

Is your organization investing in or investigating any of these three trends?

	Investing in this trend	Planning on investing in this trend	Investigating this trend
Gamification by insurers to educate and encourage insurance buying behavior	74%	22%	4%
Use of cyber security technologies to protect customer data and meet compliance mandates	74%	21%	5%
Use of big data for 360-degree view of customer and to increase wallet share	63%	32%	5%
Intelligent automation of underwriting with AI technologies or new underwriting software	56%	39%	5%
Internet of Things for risk measurement and mitigation	54%	38%	8%
Use of blockchain technology for smart contracts between insurers, reinsurers, and the insured	54%	27%	19%
Investing in technology for business rules extraction to identify and extract business logic embedded in legacy code	51%	33%	15%
Prevention of fraudulent claims using AI and analytics	46%	39%	14%
Use of AI for compliance risk management and to predict/prevent possible deviations	45%	42%	12%
Use of drones to settle claims more accurately	22%	56%	22%

Respondents from the insurance sector, who believe that at least one trend will have a positive impact, showed their conviction in the digital technology trends of the future by answering the question, "Which of the following technologies or solutions will your organization use in order to realize the promise of all of these trends? They named the same technologies driving those trends, namely, big data analytics (59 percent), cyber security (57 percent), and AI (51 percent).

Conviction apart, how equipped was the insurance sector to implement these trends on the ground? When the survey asked the respondents if they had what it took to implement their top trends, an identical number said they possibly needed to improve their technologies (86 percent) and their skills further (86 percent). More than half, 56 percent, cited lack of funds as a barrier to implementation.

IN CONCLUSION

For long a laggard when it came to technology, the insurance industry is playing catch up. Despite being caught in a difficult environment, insurance providers are maintaining a positive attitude about the future, and are fully cognizant of the digital transformation needed to get there. Accordingly, they are making the right investments, but also admit that they need to bolster their technologies and skills further to implement the trends to the fullest.

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