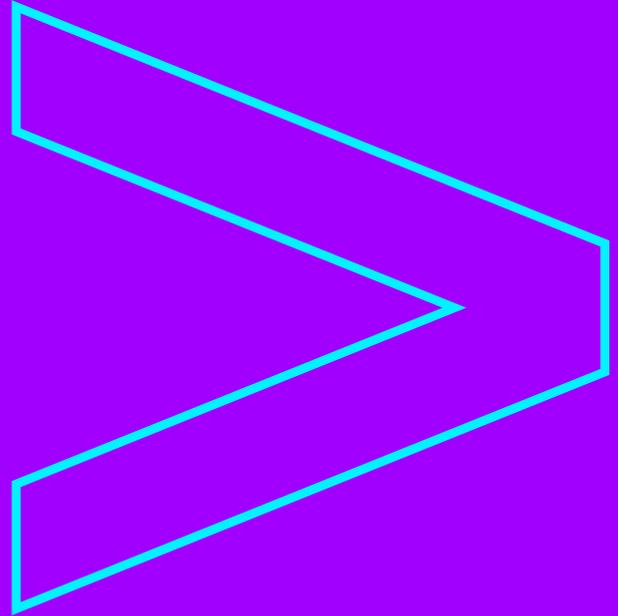THE INTELLIGENT
INSURER

REDEFINE
INSURANCE
with Artificial Intelligence

accenture

A TECHNOLOGY REVOLUTION LIKE NO OTHER

Artificial intelligence will enable financial services companies to completely redefine how they work, how they create innovative products and services, and how they transform customer experiences.

Artificial intelligence (AI) is creating the single biggest technology revolution the world has ever seen. The technology – which enables machines to simulate and augment human intelligence – has finally come of age. Across all industries, it's being used to address a wide range of challenges, large and small, by making interactions with machines and systems simple and smart.

Financial services companies, too, are entering the intelligence age. And they're doing so while already under intense pressure on multiple fronts. Rapid advances in AI are coming at a time of widespread technological and digital disruption. Competition is fierce. More than half of Fortune 500 companies have gone out of business since 2000. And AI is set to take this disruption to a new level.

But it's going to bring enormous business value at the same time. Although AI technologies are still evolving, they already have the capacity to enable tangible, real-world business outcomes – today. AI is more than a productivity enhancer – it's a completely new factor of production. And its outcomes can be transformational. By letting machines learn, adapt and improve, AI can bring exceptional value to a business and its customers – and lower costs as it does so.

So, whether it's intelligent automation replacing repetitive manual tasks, workers augmented with enhanced judgement, improved interactions with customers, the development of intelligent products, or the use of responsible AI, the technology will drive enterprise growth, profitability and sustainability across the board.

What's more, AI is set to have a truly positive impact on people. By removing monotonous, repetitive tasks from day-to-day work, it will elevate employees to more rewarding, higher-value roles. It will bring completely new opportunities for the workforce – in the form of new jobs and new skillsets. And it will create technology experiences that are far more closely aligned with personal goals than anything an organisation has been able to deliver to date.

AI EXPLAINER

What is artificial intelligence? Broadly, it refers to the development of machines or systems that can perform complex tasks normally considered to require 'intelligence' and thus thought to be the preserve of humans. Demis Hassabis, CEO of Google Deep Mind, calls it 'the science of making machines smart'. Russell and Norvig describe an intelligent machine as 'a flexible, rational agent that perceives its environment and takes actions that maximize its chance of success at some goal'.[1]

We define it simply as: a computer system that can sense, comprehend, act and learn. In other words, a system that can perceive the world around it, analyse and understand the information it receives, take actions based on that understanding, and improve its own performance by learning from what happened. And by enabling machines to interact more naturally – with their environment, with people and with data – the technology can extend the capabilities of both humans and machines far beyond what each can do on their own.

SENSE
Perceive the world by acquiring and processing images, sounds and speech.

COMPREHEND
Analyse and understand the information collected by adding **meaning and insights.**

ACT
Take action in the **physical world** based on comprehension and understanding.

LEARN
Improve performance (quality, consistency and accuracy) based on **real-world experiences.**

1 Russell, Stuart J.; Norvig, Peter (2003)
  Artificial Intelligence: A Modern Approach

While the term 'artificial intelligence' has been in use for decades, the technology's pace of evolution has grown exponentially in recent years. That's because AI doesn't in fact represent a single technology. Rather, it's a multidimensional field encompassing a range of different technologies and methods, each supporting and supported by the others. And it's the multiplier effect of those rapidly evolving underlying technologies – natural language processing, computer vision, machine learning, deep learning, neural networks, and others – powered by huge advances in cloud computing and processing capacity that has brought AI to the fore with such exceptional force.

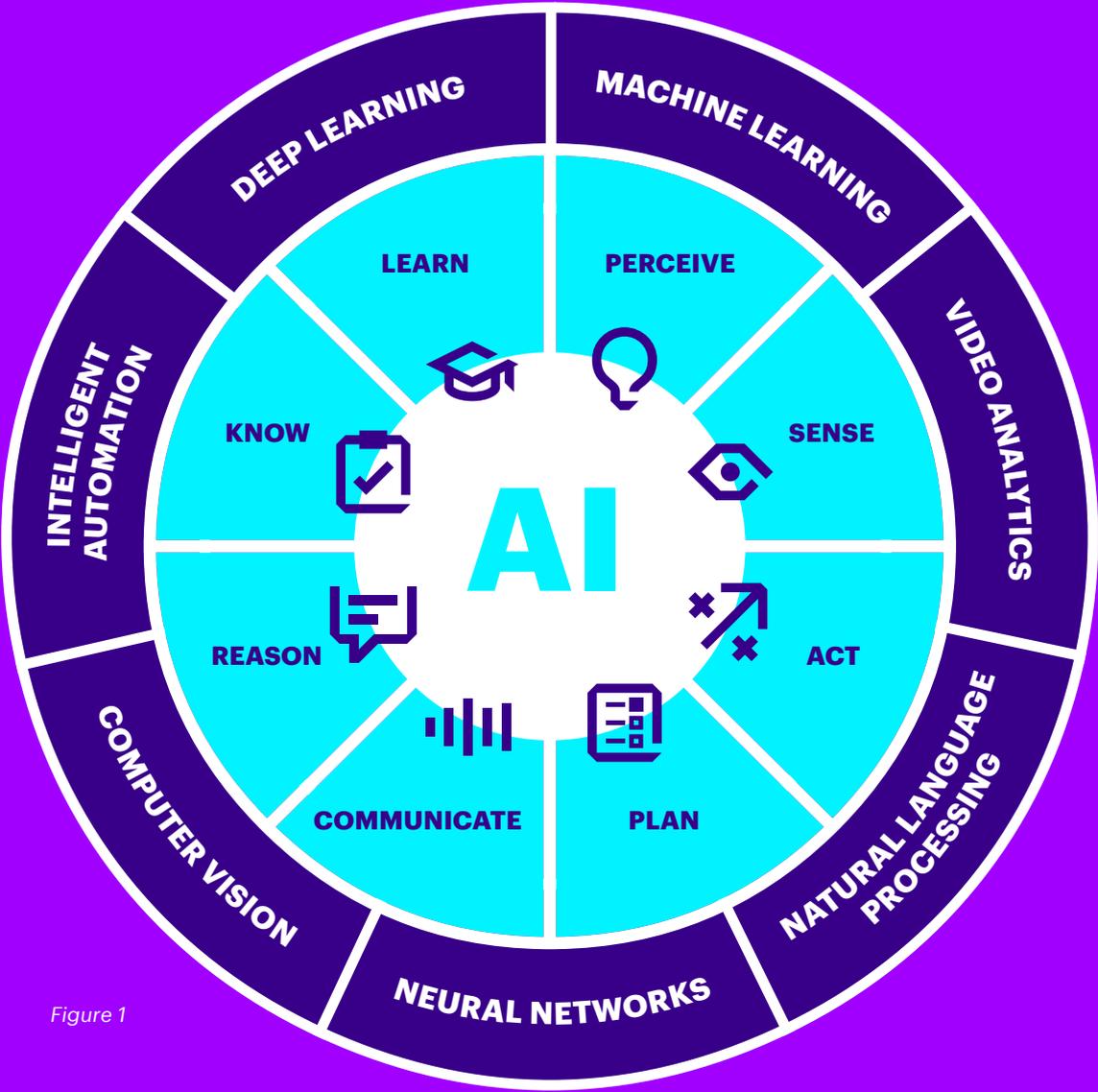# THE TERM 'AI' ENCOMPASSES MANY DIFFERENT TECHNOLOGIES AND CAPABILITIES

Figure 1

[HUMAN x PROCESS x DATA] AI

The insurers that benefit most from AI will be those that are prepared to rethink their approach to their people, their processes and their data.

These advances in AI are happening just as insurers are facing huge pressures. Competition is intense, new entrants are disrupting existing business models, and technology is advancing at an exponential rate. This represents a serious challenge for insurers in the UK and Ireland. And they know it – 88 percent believe they must innovate at an increasingly rapid pace simply to retain, let alone strengthen, their competitive edge.

As a result, insurers must find new ways to improve operational efficiency. More importantly, they must also drive product innovation and transform customer and employee experiences. Consumers' expectations of their insurers are rising, spurred by rapid technological advances in other industries. This is especially true of customer service. Why can't a customer track the progress of their insurance claim in the same way they track their Amazon delivery or their Uber driver, for example? This is just one of the ways insurers lag behind other consumer-facing industries when it comes to engaging with end-users. It not only has the potential to damage insurers' brands, but also increases their risk of being eclipsed by new types of distributor or intermediary entering the industry.

What's more, insurance products are themselves changing. Insurers are evolving away from a pure compensation model towards one characterised by prevention and mitigation. To make these new offerings work, insurers must be able to monitor and proactively respond to vast amounts of new data – from connected devices fixed to vehicles, for example – and often in real time. The speed and scale of the analysis and actions required to make use of that data is simply beyond human capabilities.

These changes call for a revolution in products and customer service. And insurers recognise that AI will play a defining role. In fact, 84 percent think it will either significantly change or completely transform the industry over the next three years, according to Accenture's Technology Vision for Insurance survey.

INSURERS ARE FACING PRESSURE TO EVOLVE, AND VIEW AI AS A GAME-CHANGING TECHNOLOGY
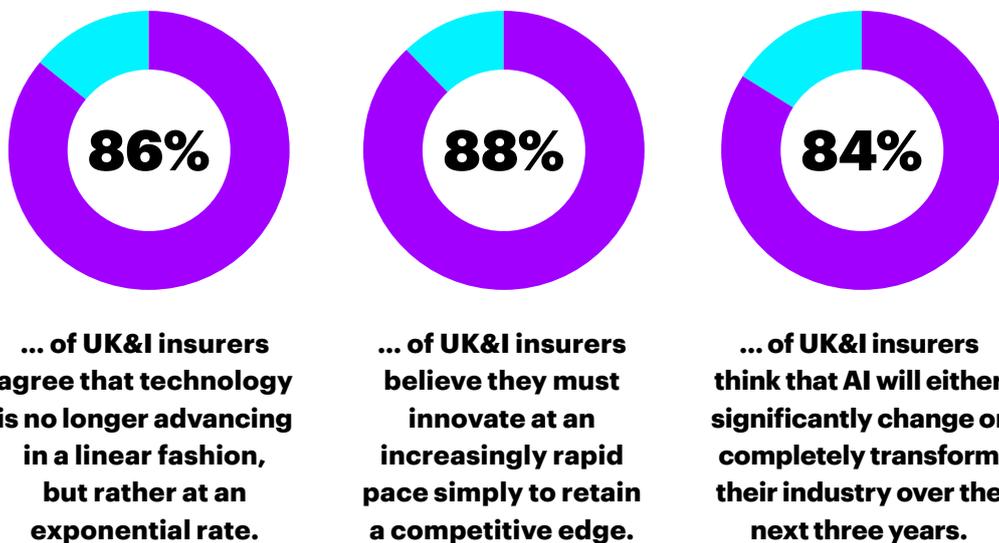
86%

... of UK&I insurers agree that technology is no longer advancing in a linear fashion, but rather at an exponential rate.

88%

... of UK&I insurers believe they must innovate at an increasingly rapid pace simply to retain a competitive edge.

84%

... of UK&I insurers think that AI will either significantly change or completely transform their industry over the next three years.

Figure 2: Data from Accenture's Technology Vision for Insurance 2017

INSURERS HAVE REACHED AN INFLEXION POINT – THE PACE AND BREADTH OF AI INVESTMENT IS NOW SET TO INCREASE DRAMATICALLY.

Most insurers around the world report that they're investing more – often significantly more – in AI technologies than they were two years ago. They also say this investment will increase even further in the near future. Four in every five insurers in the UK and Ireland anticipate making moderate or extensive investments into embedded AI solutions such as virtual assistants for their call centres over the next three years. The equivalent figures for machine learning and deep learning are much the same (see Figure 3).

The growing value of these investments isn't based on blind faith. Insurers have not only found the results of their initial investments to be encouraging, but have also recognised that constant advances in AI capabilities are opening the door to ever more fundamental transformations – especially in product development, risk management and customer experience.

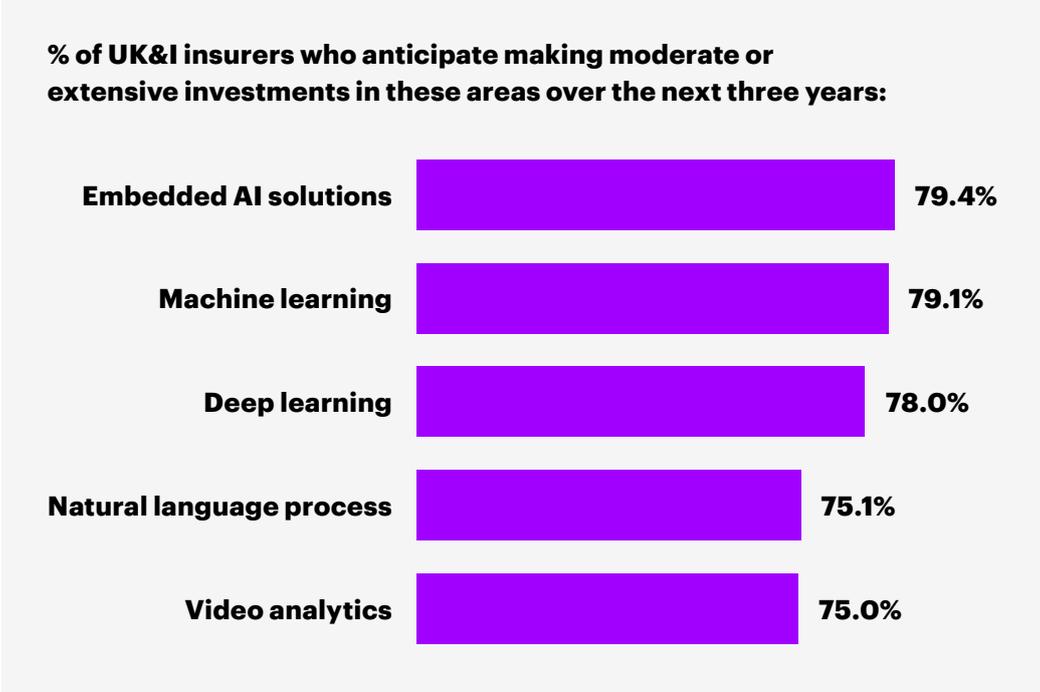# INSURERS ARE INVESTING SIGNIFICANTLY IN AI TECHNOLOGIES

% of UK&I insurers who anticipate making moderate or extensive investments in these areas over the next three years:

Embedded AI solutions	**79.4%**
Machine learning	**79.1%**
Deep learning	**78.0%**
Natural language process	**75.1%**
Video analytics	**75.0%**

Figure 3: Data from Accenture's Technology Vision for Insurance 2017

InsurTech start-ups also understand the fundamental importance of these technologies. And many have put AI at the heart of their strategies. Their digitally native workforces use AI tools as naturally as they would a pen and paper. Accenture's global analysis of more than 450 InsurTech deals revealed that the number relating to AI or intelligent automation roughly tripled between 2014 and 2016. These technologies are among the strongest drivers of growth within the InsurTech space.

HUMAN x PROCESS x DATA

So, AI technologies will clearly have a huge impact on the insurance sector. Insurers will redefine how they work (their processes), what they sell (their products and services) and how they interact with their customers and employees (their user experiences).

How should they best make use of these extraordinary new capabilities? With an intelligent framework that augments their people's work, rethinks how they operate with intelligent automation, and unlocks growth through data.

HUMAN
Transform relationships
Using AI, people will be able to spend more time on exceptional work: the 20% of non-routine tasks that drive 80% of value creation.
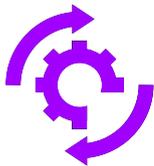
PROCESS
Re-imagine business models and processes
Smart machines will continually review end-to-end processes and apply 'intelligent automation of process change' to refine and optimize.

DATA
Illuminate dark data
Companies will apply AI to greatly enhance large data analytics, evolve algorithms with transactional data faster, and combine data in new ways to discover trends.
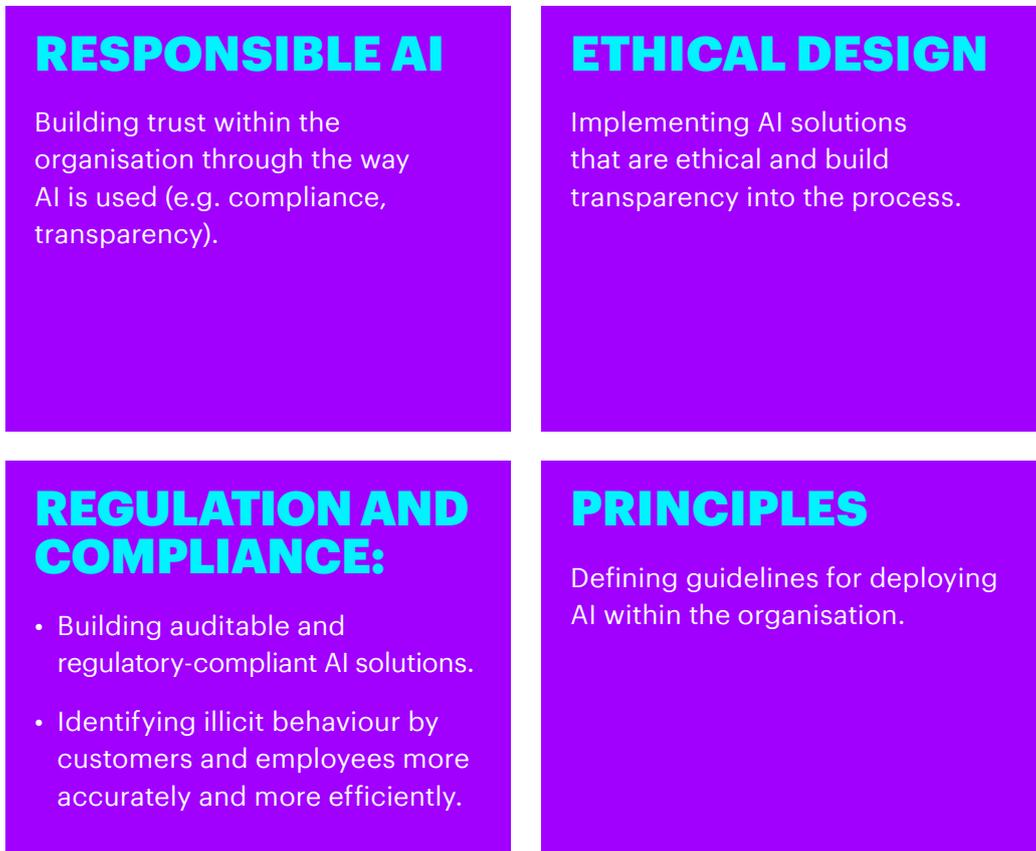
AI IMPLEMENTATION FRAMEWORK

RESPONSIBLE AI

Building trust within the organisation through the way AI is used (e.g. compliance, transparency).

ETHICAL DESIGN

Implementing AI solutions that are ethical and build transparency into the process.

REGULATION AND COMPLIANCE:

- Building auditable and regulatory-compliant AI solutions.

- Identifying illicit behaviour by customers and employees more accurately and more efficiently.

PRINCIPLES

Defining guidelines for deploying AI within the organisation.

Figure 4

HUMANS: AUGMENTING YOUR WORKFORCE

Forget about 'humans versus machines' – AI is about 'humans augmented by machines'.

Many insurers are already investing heavily in technologies like deep learning, video analytics and natural language processing. And that's great news. Yet most of those same insurers aren't properly assessing AI's impact on the human skillsets and talent strategies required to operate in this brave new world.

They need to develop strategies that deal with adapting, upskilling and augmenting their existing workers. Retraining will be needed as virtual customer service agents and chatbots automate routine tasks and free human representatives to focus on higher-value activities.

For example, US insurer Allstate deployed ABIe (the Allstate Business Insurance Expert) – a virtual assistant that walks agents through complex product processes. ABIe now handles more than 25,000 enquiries a month, giving 90 percent of users the answers they need within three questions or fewer, and reducing waiting times at the call centre to less than 20 seconds at peak load.[2]

These kinds of changes won't be limited to the customer-facing parts of the business either. Functions like underwriting and pricing may also come to rely on data-hungry machine learning algorithms rather than hard-nosed experience and human judgement, for example.

But it's vital to recognise an essential point about AI: it will also create new jobs – perhaps even entirely new categories of jobs – for the human workforce. For example, insurers will almost certainly need more people working in control and governance functions because, in addition to safeguarding existing operations, the new virtual workers and algorithms will themselves require some human supervision.

Insurers who make extensive use of AI technologies will need humans (data scientists, AI developers and others) with the skills to build, use and maintain them. That means attracting some of the best digital talent into what has historically been perceived as a slow-moving, traditional industry.

2 *"Expert System Eases Crunch at Allstate Call Center," Baseline, July 22, 2016.*
www.baselinemag.com/crm/expert-system-eases-crunch-at-allstate-call-center.html

That's a challenge that is already becoming evident. Accenture's Technology Vision for Insurance report found a third of insurers in the UK and Ireland citing 'a lack of expertise in using these technologies' as a barrier to adopting AI.

Even having the right employees with the right skills won't be enough. To respond to changing business needs in an agile manner, insurers will need to complement their own human and virtual employees with external resources. New technologies will oblige insurers to forge new partnerships, with AI vendors and InsurTech start-ups for example. And, to do so, they may need to fundamentally redesign their approach to outsourcing.

Exciting as the technology clearly is, one fact is unescapable: insurers won't be able to unlock the full potential of AI unless they can successfully support their existing human workforces in adapting to new technology. And that includes fostering the right corporate culture. Employees must understand that technology is a powerful enabler and not a threat to their livelihoods.

Insurers will need to implement responsible and ethical AI practices to ensure trust and transparency, especially given the sensitivity of the data they have access to. That means developing strict guidelines for the use of AI, as well as fully auditable and regulatory-compliant processes.

It's vital to recognise an essential point about AI: it will also create new jobs – perhaps even entirely new categories of jobs – for the human workforce.

THE MAJORITY OF CONSUMERS ARE READY TO EMBRACE VIRTUAL AGENTS AND ROBO-ADVISORS
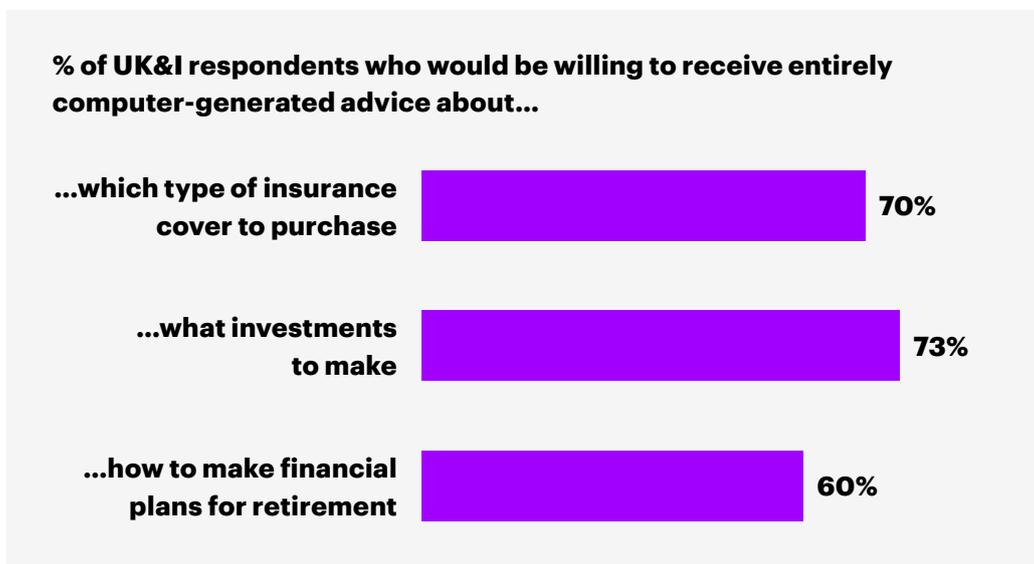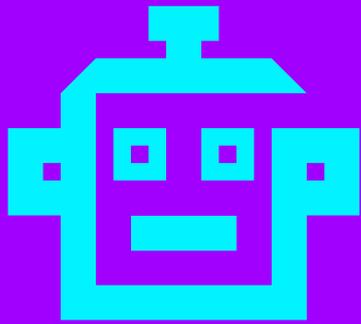
% of UK&I respondents who would be willing to receive entirely computer-generated advice about...

...which type of insurance cover to purchase — 70%

...what investments to make — 73%

...how to make financial plans for retirement — 60%

Figure 5: Data from Accenture's FS Customer Survey 2017

CASE STUDY:

THE TRUSTED ROBO-ADVISOR

Imagine having a virtual financial advisor which truly understands your complex needs, goals and risk appetite. It would act in a proactive way to secure the future you deserve. It would work tirelessly, 24/7, 365 days a year, to understand your evolving lifestyle from the data feeds to which you've given it access. It will spot opportunities for savings on your insurance and better returns on your investments. And it won't just be able to recommend the best course of action – if you want, it will act on the decisions you make too.

PROCESS: INTELLIGENT AUTOMATION

Traditional automation degrades over time – intelligent automation gets smarter all by itself. It's time to move up the maturity curve.

What's the best way for insurers to approach automation? It's certainly not about simply automating existing (and potentially flawed) human processes. Rather, it's being prepared to fundamentally redefine those processes – and maybe the business model itself – to best achieve the outcomes that are desired.

Insurers have laid solid foundations with robotic process automation (RPA) – creating rules-based virtual workforces with the ability to scale. Now they need to build on those foundations with intelligent automation – virtual workforces that can learn and adapt to the needs of the business. That means complementing RPA with newer AI technologies and evolving from pre-programmed execution to intelligent decision-making.

The industry anticipates that customer service will see the most radical improvements from this shift (see Figure 6). Intelligent, end-to-end solutions will connect the front and back offices in ways that were previously impossible. For example, they'll give human customer service representatives access to the most relevant customer data, or they'll advise a claims handler of the next best action to take during a difficult or emotional phone call. And they'll create new, frictionless experiences for customers too, such as offering the same high level of customer service at any time, day or night, on any device.

It won't just be customer service representatives who see the benefits of these smarter processes either. The wider workforce will be winners too. Taking repetitive and easily automated tasks away from skilled and experienced workers frees them to deliver higher-quality work, by allowing them to focus on the tasks or customers that genuinely need a human touch. And, just as importantly, their working lives will become more interesting.

Embedding intelligent decision-making into insurance processes is already having an impact. For example, South African insurer Santam is using predictive analytics and machine learning to reduce fraud and improve operational efficiency. Their initiative saved $2.4 million in its first four months, and has allowed Santam to accelerate half of all processed claims by leveraging straight-through processing.[3] And Japanese life insurer Fukoku Mutual is using AI to interpret medical certificates and factor in the length of hospital stays, medical histories and surgical procedures before calculating pay-outs to policyholders. They expect the system to increase productivity by 30 percent and generate a positive ROI within two years.[4]

This is not to say that RPA is obsolete by any means. Traditional forms of automation have a role in augmenting AI-centred processes. They can be used to carry out actions across underlying systems once intelligent decisions have been taken, for example. And, importantly, they can generate cost savings to fund further capabilities in intelligent automation.

Taking repetitive and easily automated tasks away from skilled and experienced workers frees them to deliver higher-quality work, by allowing them to focus on the tasks or customers that genuinely need a human touch.

3 "Thinking Big," IT Web, April 5, 2017.
   www.itweb.co.za/index.php?option=com_content&view=article&id=160794

4 "Japanese company replaces office workers with artificial intelligence," The Guardian,
   January 2, 2017. www.theguardian.com/technology/2017/jan/05/japanese-company-
   replaces-office-workers-artificial-intelligence-ai-fukoku-mutual-life-insurance

INSURERS EXPECT AI TO COMPLETELY TRANSFORM THE WAY THEY INTERACT WITH THEIR CUSTOMERS
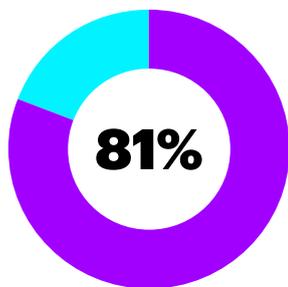
81% ... of UK&I insurers think AI will revolutionise the way they gain information from, and interact with, their customers
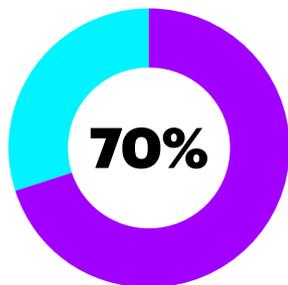
70% ... of UK&I insurers believe AI is capable of becoming the face of their organisation or brand
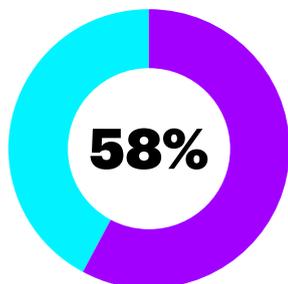
58% ... of UK&I insurers think that embedding AI into user interfaces will improve levels of customer engagement

Figure 6: Data from Accenture's Technology Vision for Insurance 2017

CASE STUDY:

INTELLIGENT FIRST NOTIFICATION OF LOSS (I-FNOL)

As you drive to work one morning, you accidentally bump into the car in front while retuning your radio. You contact your insurer's claims hotline, preferring to speak with a human being, and you complete a basic FNOL report over the phone. The claims advisor establishes that you were 'at fault', and asks you to upload photos of the damage via an app on your phone. The system uses computer vision and machine learning to analyse the images, confirms that you had an at-fault accident and automatically organises for your car to be collected and for a courtesy car to be delivered to your location. As you wait, you receive progress updates via the app.

Simultaneously, a separate algorithm automatically scores the claim and identifies a high likelihood of personal injury to the other driver. As the predicted risk score for personal injury is 63 percent, this claim is pushed to the Claims Dashboard App to be reviewed by a specialist claims handler. They review the case and contact the other driver immediately in order to arrange car repair, a courtesy car and some free physio sessions for whiplash.

DATA: UNLOCKING GROWTH

Unlocking trapped value will do more than save costs – it will create entirely new products and services for future growth.

Insurers have long led the way in using data for pricing and risk management, and they've invested significantly in technologies and people to support these functions. But this has come at some cost – a prolonged focus on traditional actuarial capabilities means that data hasn't been leveraged as widely and wisely as it might have been.

That's led to other industries – banking, retail and technology, for example – far outpacing insurance in their analytical capabilities. These industries see data-driven business decision making as vital. And they're re-engineering their end-to-end value chains around machine learning.

Insurers need to start using the cognitive capabilities of AI to help unlock the hidden value in their data – for example, by interrogating and visualising enterprise and customer data in ways that have not previously been attempted or even considered.

In doing so, one thing is essential: data mustn't be kept isolated in silos, or restricted to just one part of the value chain. Instead, it should be leveraged across the whole business. Rather than using customers' claims data only to identify fraudulent behaviour, for example, why not also use it to generate unique insights and design better insurance products? Or use real-time analysis to offer truly proactive services, such as anticipating customers' needs and offering them a product or service before they even realise they want it?

Zurich, for example, is working with EagleEye Analytics and its Talon Predictive Analytics System. Machine learning algorithms produce real-time scoring to better inform decisions in claims management, pricing and underwriting, marketing and distribution.[5]

Insurers should also look beyond their own datasets to unlock growth. New types of external or public data could let them tap into new revenue streams. And taking an innovative approach to data will often serve as a catalyst for innovation in other parts of the business.

Insurers should also look beyond their own datasets to unlock growth. New types of external or public data could let them tap into new revenue streams.

5 *"Zurich Insurance Group picks EagleEye software for analytics initiative,"
ITS SC. http://its-sc.com/zurich-insurance-group-picks-eagleeye-software-
for-analytics-initiative/*

USING AI WILL GENERATE RICHER DATA INSIGHTS FOR INSURERS, AND MAY EVEN OPEN UP NEW REVENUE STREAMS
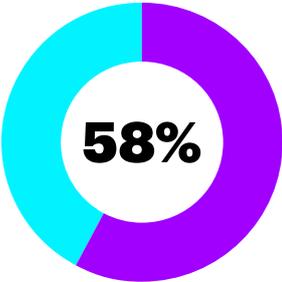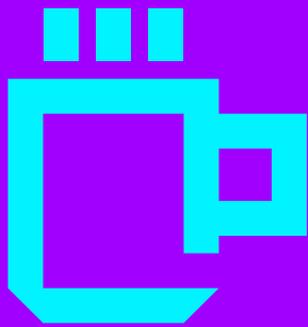
58% ... of UK&I insurers expect their firm to benefit from additional data analysis and insights as a result of adopting AI
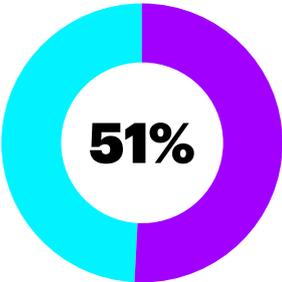
51% ... of UK&I insurers expect their firm to benefit from increased revenue opportunities as a result of adopting AI

Figure 7: Data from Accenture's Technology Vision for Insurance 2017

CASE STUDY:

A FREE COFFEE TO KEEP YOU ON THE ROAD

Picture yourself at the wheel of your car. It's three years from now. It's late. You're on the motorway. And you're tired because you got up early to watch the Tokyo Olympics. In fact, you're so tired you're in danger of having an accident. So, your virtual assistant pops up on the dashboard, or phone, to let you know it's been monitoring your telematics feed in real time and it thinks you may be tired. It starts a conversation about the Olympics – it knows you're interested because the data you've given it access to tells it you've been watching. As you talk, the virtual assistant analyses your voice and decides you're too exhausted to be driving. So, it offers to buy you a coffee at the next service station – paid for by your motor insurer. And why not? After all, buying coffee for a couple of hundred drivers a night is still a lot cheaper than dealing with a single insurance claim.

EMBRACING INTELLIGENCE

AI represents a technological revolution like no other. Unleashed from the realm of science fiction, this is a real-world technology that is ready to be implemented in any business – today.

And as high-powered computing becomes ever more readily available, and as vast data sets needed for training AI solutions become more accessible, the capabilities will continue to grow exponentially. The world has barely scratched the surface of AI's possibilities.

That creates an imperative for all financial services companies. The time to move on AI is now. Low barriers to entry will bring ever fiercer competition for AI talent, AI patents and AI capabilities. And coming AI advances will be so all-encompassing, and so fast-paced, that high-performing organisations will inevitably accelerate away and leave the slow movers far behind.

Those high performers will use AI to transform the way they organise, run and grow their businesses. They'll implement the technology in innovative ways to reduce cost and create better experiences for customers and employees alike.

But to do so, they'll need to completely rethink how their organisations, and their workforces, operate. They'll need strict guidelines to ensure AI is used responsibly and ethically. And they'll show their employees that AI represents nothing like the threat that some believe it to be. Rather, that it's a means to elevate human working lives to new heights of self-fulfilment.

And, by drawing together the core elements of their people, their processes, and their data, insurers can position themselves to lead their industry as it enters a new era of AI-driven enterprises. Now's the time for insurers to get smart and embrace the transformational power of artificial intelligence.

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