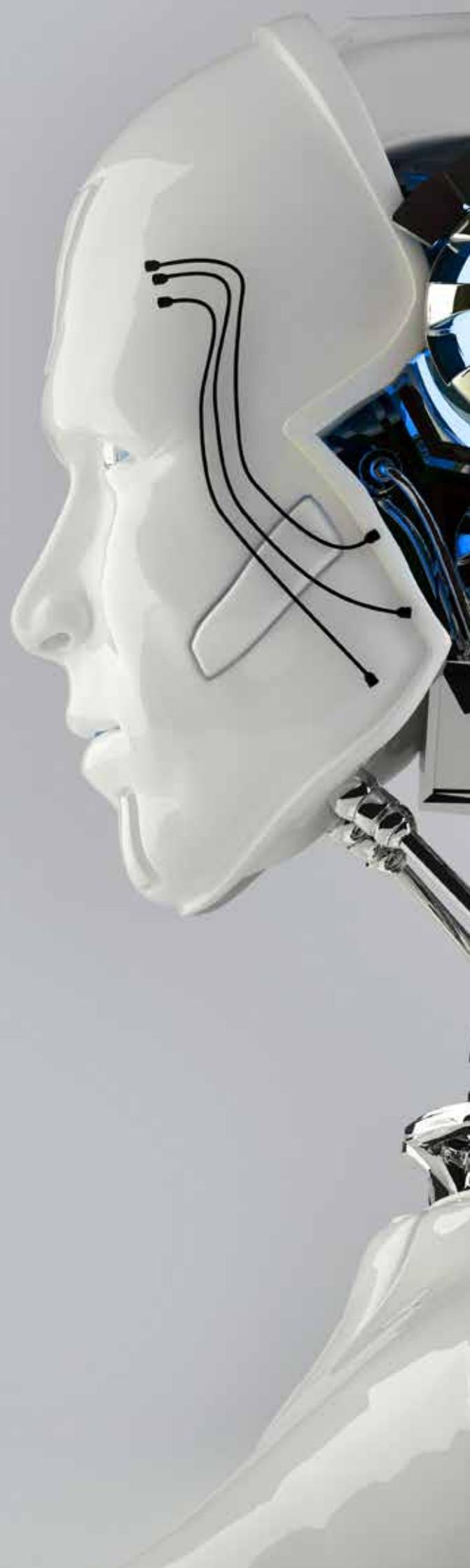**KPMG**

Future In.Sight

Insurance evolution through technological revolution

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Technological innovations are re-shaping the insurance sector, improving customer service and providing opportunities for improved return on capital.

The insurance industry has been slower than other sectors, including banking and telecoms, to grasp the potential of transformative technologies such as machine learning, robotic automation and blockchain.

Murray Raisbeck, Insurance Partner and Innovation Lead at KPMG, believes the insurance sector still views these technologies as "buzzwords", with limited knowledge of how to apply them to their business. Yes, the fast pace of technological change is difficult to keep up with. However, don't feel that it is too late to take the first steps.

"Driving innovation in this sector is a huge challenge," he says. "But you have to stay in touch with technological developments to improve your service to customers and stay relevant. You have to innovate and put technology at the heart of your business strategy."

"Traditional players are facing new competitors with new tools at their disposal. And they are using these tools to deliver more agile, customer-focused solutions," adds KPMG Director of Strategy Matthew Smith.

Insurers have to consider their response relative to their strategic ambition – this will drive clarity in how they can re-imagine their business and operating models. "Some people think that if you are not exploiting these new technologies already, you're dead, but you can look at this through the lens of opportunity. How do you embrace these new technologies in a very complex and diverse value chain? What capabilities will help you access parts of the market more effectively or better get to market and provide better solutions to clients? How can these capabilities create a stronger, more scalable operating model for execution? How will it help you shift and move to capture new opportunities? And are you ready and able to accommodate change?"
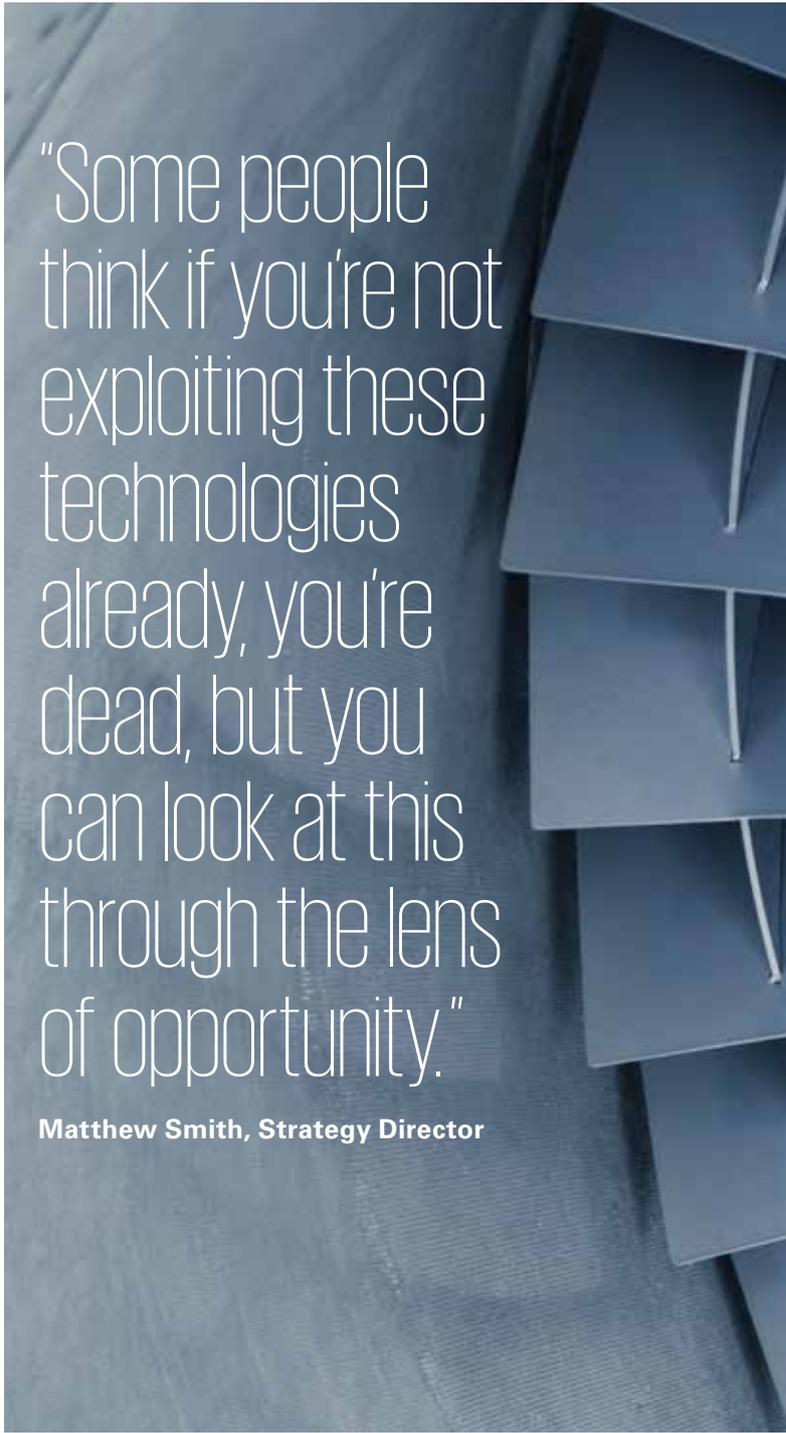
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Velocity of change

It is also vital, Smith stresses, to fully understand the disruptive forces in the insurance sector. Technology is a critical enabler but there are other factors such as sector convergence that are redefining the landscape. New and emerging risks which demand new insurance products and solutions are another, and customers are demanding preventative solutions over traditional protection products.

All this comes at a time when insurers are struggling with the headwinds of a soft market; a high cost base; and legacy supply chains and systems.

Smith says insurers should be asking themselves some key questions: What will we be famous for? What role will we play in customers' lives? Where will we play and how will we win?

"Business models are changing much more than operating models," he explains. "This is a pull-and-push phenomenon and many people can't move quickly enough based on how we operate today. You need to determine your organisation's willingness to face up to, and execute change. Are you really ready – and is the proposed change connected to where your organisation as a whole is going?"

Data is the key

"Insurance in the past was about protection, but in the future it will be about prevention," Smith continues. "How do we use insights from data and analytics – and make them relevant to our business and our strategy?"

No wonder disruptive insurance businesses, with a founding focus on data, are set to reap rewards, according to Gary Richardson, Director and Head of Data Engineering for KPMG.

"We know one start-up that makes blockchain-enabled locks – which means that over the next five years it will gain more data about our habits on entering and exiting buildings and storage facilities than any insurance risk modeller ever thought of," he says. "From this they could build pricing models with unbelievable precision.

"Or take the business built on a machine learning platform to deliver biometric insight about wellbeing from people's wearables," he continues. "It collects data about how much we move around, our skin, our heart rate – and predicts if we are going to get stressed or develop other illnesses." That has huge implications for life sciences and health insurance.

"Streaming data will be very important in the insurance industry because we can now put machine learning in the stream," Richardson says. "For example, if you're skiing but excluded winter cover in your travel insurance, your insure bot understanding your geolocation and elevation could ask you if you want to take it out before you head down the run."

"In insurance, we need to think about how to shape customers' futures, not just analyse their past."

Gary Richardson, Head of Data Engineering

Open and obvious

How to deal with the disruptors, then? Insurers are missing a trick, Richardson believes, if they don't make their business application programming interface (API) ready, as in that case InsurTechs will simply move on to those that have already started to make the InsurTechs part of the ecosystem.

"Insurers living on legacy technologies are going to struggle to integrate with cool ideas such as chatbots that automatically offer, say, travel insurance to customers," he says. "They need to open up their APIs and give some pricing models to InsurTechs to boost transaction levels."

There's also scope to automate time-sensitive decisions based on real-time data. Richardson cites the banking sector, where algorithms assess customers' ATM withdrawal patterns to identify potential fraud. "Customers are used to services such as Netflix, where data scientists and machine learning technology help you to figure out what you want to watch," he says. "People want insight-backed products – in insurance, we need to think about how to shape customers' futures, not just analyse their past. You are not restricted by the data; you are restricted by your imagination."

One actuary to one computer won't cut it in the insurance office of the future – it will be more like one actuary to 40 computers. "Computing is not going away. Invest in it and help people use it better," he says.

Where to invest

Where should insurers invest, then? One area that's set to grow rapidly is robotics, taking automation to the next level, including offering advice and managing claims. That offers real benefits in terms of cost and can elevate the customer's perception of company performance. "Then keep an eye on blockchain technology and test it in pockets," says Raisbeck. "And with machine learning, there's an opportunity to get the first-mover advantage. It's a good area to invest in – and it begins with capturing data."

Some insurance players have expressed both "fear and feelings of opportunity," he adds. "That shows there are massive cultural issues around change, not just technological ones. But we have to be more technologically enabled as we try to get more customer-centric. We have to be agile and address the legacy challenge. It has to be core to strategy – not just have it for the sake of having it."

Raisbeck urges insurers to do some deep thinking on technology – not just in existing silos, but throughout an organisation and partnering with businesses inside and outside the sector. His ultimate challenge for insurers is simple: "Have you have got enough imagination to do this?"

Robotics and digital labour

Robotics isn't just limited to car assembly or the droids of science fiction films. Today, it refers to any replacement of human activity with digital technology to improve business and customer outcomes. And KPMG Partner Jameel Khokhar thinks it will have a significant impact on offshoring back offices and call centres.

"The cost of technology and barriers to entry are coming down – and we're seeing real growth of InsurTech innovation in the UK," says KPMG Partner Jameel Khokhar. "Insurers are looking to reduce organisational costs, and digital labour can take them to the next level. The magic dust is robots – not the C-3PO types, but the ones that exist within your computers."

First, we have basic process automation (BPA), which replaces repetitive tasks and improves business process management. It can reduce costs by between 30% and 40%.

Second, enhanced process automation (EPA), which is based around machine learning. "Imagine if you put a piece of software behind an insurance agent, recording all the claims, decision processes and data," Khokhar says. "Eventually it will learn to approve or not approve claims by itself. The mobile industry already uses chatbots, which have documented questions and answers and are now

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> **Jameel Khokhar, KPMG Partner**

supporting agents in making decisions as well as talking independently to customers."

Third, cognitive technology, which involves artificial intelligence, natural language processing (including reading tone to determine emotion) and analytics of super-data sets. Khokhar states this is currently under-utilised as a solution, but is being used in small pockets within industry to enhance the customer experience. "But in the future, the insurance industry might be able to predict whether someone is going to have an accident based on their behaviour," he says.

Getting the first two right now can vastly improve the customer experience through speed to market of products, quicker decisions and reducing the need for call centres and offshore capabilities. "If you're not thinking about digital labour now, your ability to operate in the future will be challenged by new entrants to the marketplace."

Blockchain

Blockchain is beginning to gain ground in the financial world, although remains most famous for underpinning digital currency Bitcoin. The technology is a way of ordering and verifying transactions in a distributed ledger, where a network of computers maintains and validates a record of these transactions with a cryptographic audit trail.

"It is nothing more than transactions that are represented in a network as a 'block'," says Chris Mills, a leader in KPMG's global blockchain initiative. "Each transaction is broadcast to every party in the network for them to agree by consensus. There is no central control and it is immutable. It is tamperproof and secure."

Blockchains can be public, like Bitcoin, or private – where they offer counterparties big advantages. "You have a complete dissolution of intermediaries and reconciliations, which leads to cost savings," says Mills. "There is also lower compliance and regulatory coverage costs."

Concerns have been raised about the speed of transactions, regulatory challenges, security and privacy. And incumbents face substantial IT investment to replace existing infrastructure.

"The trick will be getting proof of concept. It is time for the insurance industry to catch up."

Chris Mills, leader in KPMG's global blockchain initiative

Yet the applications in insurance are just emerging. Insurers could build a "Know Your Customer" blockchain with records of client addresses, employment history and qualifications. "Customers who want a mortgage or an insurance product could check their credit records through this mechanism," says Mills.

"In terms of claims handling, the ledgers could be a set of processes that run automatically," he continues. "So for flight insurance, if your plane is delayed by an hour, you automatically get £25 to eat at a restaurant during the delay. You can provide true solutions to customers."

Fraud detection is another potential benefit. "Crash for cash is about using cross-industry data so you know whether that person owns that car and is insured for it on that particular day; identities can't be obscured," he explains. "The trick will be getting proof of concept. It is time for the insurance industry to catch up."

Machine Learning

Machine learning is defined as "the field of study that gives computers the ability to learn without being explicitly programmed". In an insurance context, for example, statistical algorithms could model the relationships between data – such as location or claim frequency – and then refine and evolve that model over time to maintain optimum pricing or servicing levels.

KPMG is helping clients set up machine learning labs to test how it helps better model insurance risk, improve efficiency and customer service, and ultimately reduce costs. Partner David Brown explains: "You can train machine learning algorithms on motor claims data to predict which of your customers is likely to make a claim. They run by themselves, retrain themselves and get better all the time."

KPMG recently performed a proof of concept of machine learning to model motor claims. "It was predictive, identifying key features and interactions correlating to frequency and risk groups poorly captured in the past," Brown says. "We got the data analysis up and running in six weeks, across four different algorithms. That's agility that leaves the traditional ways of working and developing a pricing model far, far behind."

Brown says one client is seeing that claim settlement times could be dramatically reduced to a fraction of what was previously achieved – we're talking tens of thousands of times faster. "It could lead to the holy grail of personalisation of product – and improve the fast recognition of fraudulent claims."

But, he warns, customer benefit must be at the heart of any investment in these technologies: "Machine learning tips the balance of power towards insurers. With all of that analytical power, the onus is on insurers now to always do the right thing. We give companies like Google the right to use our data only because we get such benefit from it. It is that which gives them the licence to operate. Insurers must hold themselves to the same standard."

The FCA launched a market study into the use of big data in general insurance in late 2015. Brown says it's keen that the different amounts of data available for different types of customer do not create barriers of access to insurance, leaving certain customers unable to find cover.

Beyond testing proofs of concept, putting machine learning at the heart of the business brings a new level of challenge for insurers. In a regulatory regime defined by personal responsibility for decision-making, where does machine responsibility sit? KPMG has started working with organisations looking at how business models can be radically redesigned in this new environment, whilst keeping an eye on appropriate conduct.

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