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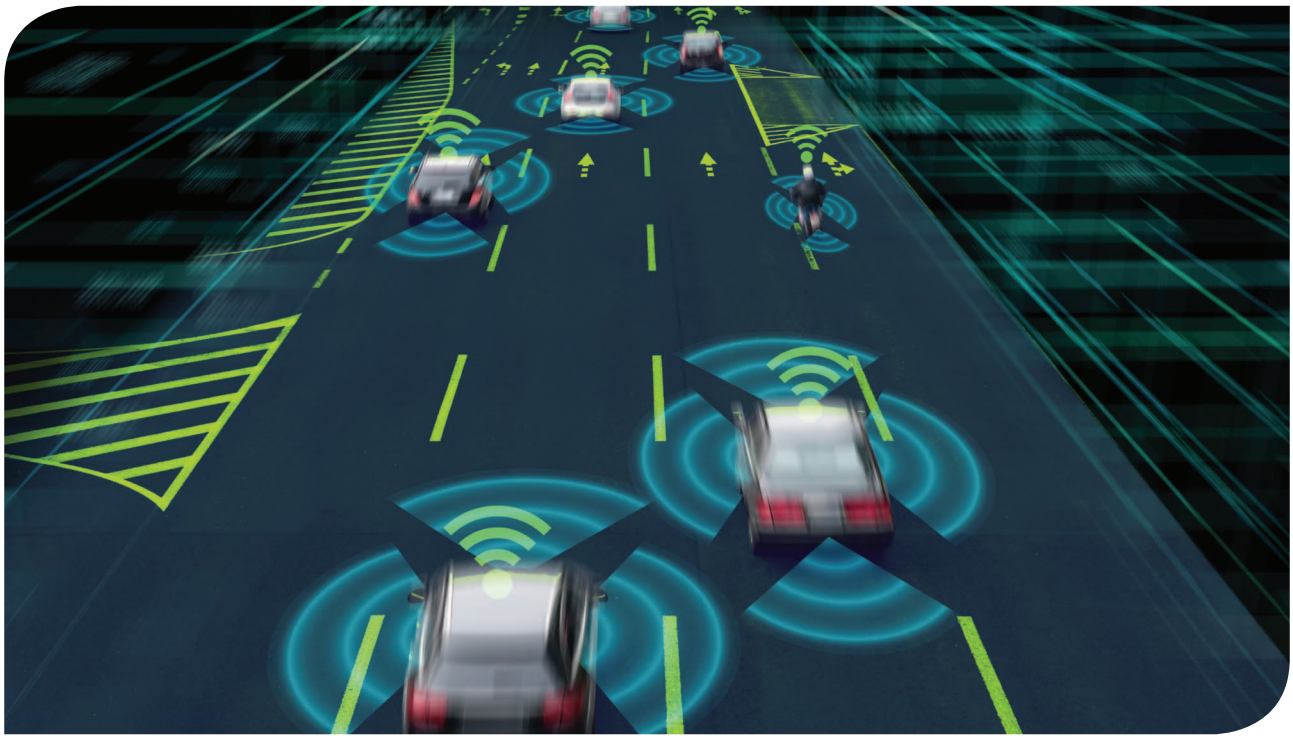
WHITE PAPER

How to become a truly data-driven organisation in the insurance sector



The data revolution

It's no revelation to say that data is instrumental to the success of most, if not all, modern enterprises. For the insurance industry, however, this has been true for probably as long as insurance has been a consideration at all – arguably around 5000 years, since Chinese merchants began agreeing to split their cargo across multiple ships, to reduce losses if a particular vessel happened to sink.

The central premise of insurance, and the way claims were carried out – usually through hefty rounds of paperwork and a certain amount of human contact – has changed little in those thousands of years.

But technology is, finally, catching up, and this is beginning to alter the insurance industry in irreversible ways. In the past two years, the human race has created more data than in our entire history[1].

It's good news. With machine learning, artificial intelligence, RPA (robotic process automation) and other innovations emerging, there's a plethora of ways to begin working on data-led projects in insurance, in legitimately low-cost, low-risk ways.

At the same time, the increasing complexity of the sector's responsibilities – many arguably led by technology themselves – is starting to mean that organisations who are left behind may start to face problems sooner than expected.

What the insurance industry needs to do next is start discussing how to rise to the challenges data creates – both in terms of keeping up with rivals who are similarly adjusting, and capitalising on the many opportunities available in rising to the occasion.

That's exactly what this paper seeks to do. By identifying challenges and opportunities in data for insurance, and discussing common use cases, we want to show you that planning data-driven projects of high transformational value are excitingly possible and fully controllable given the right strategy, culture and capability.

The challenge: Applying the power of data to the world of insurance

The UK government is committed to having driverless vehicles on British roads by 2021[2]. It's exciting, but what does it mean for the insurance industry?

The industry will have to think about risk and claims management. Who carries the risk? Is it the car manufacturer, the software designers, or the engineers? And who pays out – the local council, for responsibility of the roads, or the Highways Agency for providing the data that feeds the cars? In the case of an accident, who can the passenger claim against?

All these concerns are just scratching the surface on what's to come, but one thing is clear: It's a data problem way beyond what most of the insurance industry has historically seen.

GPS, car 'black boxes', manufacturer databases, local council roadside sensors – all will need to log what cars are doing. The implementation of data science is going to be essential to define how risk and claims work each time, especially with an absolute lack of historical data on which to base initial models.

Generally, becoming data-driven boils down to four key aspects: Asking the right questions, to ensure you start with the right trajectory, infrastructure, to support the project, security, to keep it under control from existing and emerging threats, and then finding the right blend of people and technological assistance to actually execute the work.

Ask the right question

As the Roman philosopher Seneca said: "If one does not know to which port one is sailing, no wind is favourable".

It's absolutely imperative to begin your data project or process by asking the right question. What do you want to find out from your business, and translate into actionable insight? Now's the time to find out, as well as identifying how asking that question will benefit the organisation once you've found out.

Transforming legacy systems

As with any digital transformation process, the key with updating – and future-proofing – a legacy insurance IT system is to carefully fit the project to use case and specification, and involve the correct available technologies.

Historically, IT systems have been architected around the 'defensive' words - such as 'govern', 'secure', 'protect' and 'manager'. Whilst this remains to be relevant, businesses who are looking to become data-driven must strive to balance these with the 'proactive' terms - such as 'leverage', 'democratise', 'exploit' and (even) 'monetise'.

KPMG says a "holistic, top-down view"[3] is of particular importance, making sure to optimise the whole model as opposed to an "upgrade or replacement endeavour." Rich Pugh Chief Data Scientist at Mango Solution adds, "when we think about data we can think about it in 'defensive' and 'proactive' terms. Historically, IT systems have been architected around the 'defensive' words - such as 'govern', 'secure', 'protect' and 'manager'. Whilst this remains to be relevant, businesses who are looking to become data-driven must strive to balance these with the 'proactive' terms - such as 'leverage', 'democratise', 'exploit' and (even) 'monetise'. Modern data infrastructure and approaches allow us to strike this balance and build systems to underpin forward-looking data-driven enterprises - if we simply replace the old we could miss out on opportunities to advance our business models, and could be hamstrung later by 'defensive' thinking.

The key with insurance systems is the interconnectedness of operating layers. From technology comes a direct effect on customer segmentation, process, channels, people and the organisation as a whole.

In terms of adopting new technology, working with emerging API technologies, suggests KPMG, is a good way to "repurpose and modernise" existing legacy systems.

This way, you stand a good chance of being able to work your new infrastructure into omnichannel experiences – as mentioned earlier – with the API technology allowing access from numerous devices, user and technology experiences into the future.

While "agile" isn't an all-encompassing fit for insurance – business accountability having to come first, as in with banking or other financial areas – the back-end of your new system still need not be a slouch.

API access, not to mention correctly provisioned private cloud technology, and perhaps even hyperconverged infrastructure, are available to provide the ease-of-use of public cloud-style customer access in a heavily secured private cloud environment.

Securing those systems

In 2017, the NotPetya malware attack, which swept the globe, attacked shipping group Maersk, leaving the firms systems down for 10 days and costing $300m in lost business.

Data itself is also of course at risk, with insurance consultancy Mactavish finding, in a November 2018 report, that 43 per cent[4] of UK insurance firms have been hit with at least one cyber-attack in the past two years, and only 26 per cent feeling their company's strategy for prevention and/or detection of such attacks was "good".

With GDPR – the General Data Protection Regulation – having come into play in May 2018 across the EU, and all who trade with it, it's more important than ever to cover every base. In mid-2019, BA were fined £183m and Marriott hotel group nearly £100m for customer data breaches that fell inside the introduction of GDPR. For any new system with data at its heart, that's a wake-up call.

In 2019, the cyber security focus has moved from attempting to prevent every attack, to detecting and mitigating. This means the use of real-time security insights constantly resident on the system, often powered by learning AI, as opposed to relying on security system software patches with known threats.

As with insurance itself, this can extend as far as AI-powered risk modelling to plan for and better understand cyber threats.

The important overriding consideration is that while data is powerful, its misuse or mismanagement can also seriously harm your organisation, and security should be an intrinsic part of your building your policy and outlook. This includes the way employees approach its use and governance.

Leveraging new ideas: The human and technology sweet spot

With a customer-centric system in place and the right security policy working across it, what remains is to find the optimal way to run the system.

"InsurTech" is essentially a summation of much of what this paper has already discussed: a set of technologies to leverage and bring to bear the power of data. Containing elements such as deep learning AI, apps and APIs to pull together both employee and customer experiences – as well as policies – into easily managed UXs, InsurTech can even go as far as introducing peer-to-peer insurance models for groups or customised personas. The InsurTech market is expected to grow by over 41 per cent by 2023[5].

Blockchain, meanwhile, has been popularised mainly by the wavering fortunes of cryptocurrencies, and is intended as a transparent, untamperable record – a distributed, decentralized public ledger. Each "block" stores data on a transaction with a unique digital signature, and is then strung straight onto the next – the "chain". In insurance, the benefits are obvious, with new products and improved processes possible by leveraging the inherent 'truth' offered by a correctly functioning (and unhacked) blockchain.

Automation is, of course, another temptation with so much technology flying around anyway, but the question still remains as to how far an organisation should automate in opposition to growing and developing human skills.

The European data science skills gap continues to yawn wide, with 346,000 qualified data scientists required by 2020[6] to serve the needs of companies in almost any area you could name, as all industries flock to becoming data-driven organisations.

IBM believes 28 per cent of all jobs in digital will be in the data science field[7].

So while building and securing systems may do well for generating actionable insight in well-structured and well-governed data, without culture, there are still considerable risks. 'PoC purgatory' can quickly emerge if projects are allowed to run rampant without full understanding from the business, and without the right questions being asked – and challenged – along the way.

In insurance, skilling up in data science isn't as simple as finding those key people who can 'talk data while communicating with the rest of the business'. While this old mantra is still of critical importance, in insurance, there is a huge layer of project planning and strategy involved to lay the correct groundwork for projects large and small.

Experts at Mango Solutions suggest that optimal data science training requires carefully defining business challenges, finding the best ways to deploy data to truly drive decisions, embedding best practice, utilising the right analytical tools and – beyond hiring the data scientists themselves – making sure to hire the right blend of people to support the data-driven outlook.

Project frameworks, inspiring plans, and ordered approaches are all ways to achieve high value data insights in a structured, manageable and value driven way.

Bringing it all together: The top five data-driven use cases in data-driven organisations

Maximising cross and upsell through superior customer experience

A happy customer will buy more, and data science can unlock insights to both win and retain customers. These insights in turn can help businesses improve the customer experience, measurable by immediate impact. Did increased spend on customer retention directly affect revenue? You can find out instantly by connecting data systems.

REACHABLE GOAL

With a 360-degree customer approach brought about by data-driven policy and action, the right services can reach the right people, at the right times, on all the right channels.

FUTURE ASPIRATION

Your company's product development and customer service strategy can be driven entirely by data-insight, in a consistent, agile and 24/7 way. Like Google and Facebook's search and user data algorithms, your future can be data-governed.

Detecting and preventing fraud

Theft of customer credit card data is rife, and only getting worse, but judicious use of data strategy can easily create a picture of 'normal' account activity for a service user, flagging abnormalities, automatically, at the earliest possible moment.

REACHABLE GOAL

Hugely reduced risk of major insurance fraud being carried out via wide-reaching data insight at and around the point of transaction.

FUTURE ASPIRATION

Claims histories, advanced pattern recognition, automated social media sweeps and analysis of groups of individuals with histories of unusual behaviour[7] can all be brought together to provide real-time, full-featured fraud forecasts.

Optimising marketing spend

Marketing has become, thanks in large part to data-driven approaches, an ROI-based area of an organisation. With customer data being captured with every online transaction, vendors can gather huge volumes of structured and unstructured data about each individual in order to offer targeted, personalised marketing, as well as measurable short-term effect.

REACHABLE GOAL

Individuals within persona-based groups have individual preferences, and algorithms can help determine which communication or marketing channel would have most impact with a particular customer, delivering the highest response rate, thus optimising marketing spend.

FUTURE ASPIRATION

Similarly to cross and upsell, enough data insight into your customers can allow you to start forecasting to the tiniest detail – marketing on a bespoke level and automatically generating uniquely appealing opportunities to individuals.

Pricing automation

Aligned to increasing competition, it's important to ensure profit covers any potential risk. For example, the automotive industry is extremely price-sensitive with insurance comparison websites.

REACHABLE GOAL

Use data-driven insights to assess an individual's level of risk, sensitivity to price, and loyalty to the insurer. Algorithms can be used to adjust insurance premiums in accordance with the data.

FUTURE ASPIRATION

Combinations of software-based customer modelling and IoT hardware can raise and lower premiums almost instantly, reporting customer actions back to the insurer and creating individual personas for vehicle, home and medical insurance.

Claims resource allocation

Resourcing of a claims team can already be managed through data, with peaks and troughs in claims traffic across the day, week and month cross referenced to other factors such as weather conditions.

REACHABLE GOAL

Adding historical data can ensure the most efficient resourcing. For example, extreme weather patterns in particular months may have influenced numbers and types of claim, or seasonal changes may have altered resource during particular periods throughout the year.

FUTURE ASPIRATION

With sufficient historical data built up, the algorithm's range and quality will improve in speed and focus. From this, less IT resources will be required, freeing up real estate to work on other development areas.

Conclusion

With a data-driven approach and outlook, the insurance sector is rife with opportunity. By putting in place suitable platforms and the right people, it's already possible to begin revolutionising your corner of the industry.

It all starts with the culture. Your organisation can aim to make a step change – on a strategic and operational level - in the way it uses data, understanding its value as a strategic asset that can inform better decision-making.

With analytics strategy, capability, technology and, finally, delivery, tackled as a process, you'll be able to start approaching projects one at a time, for both short-term tactical and long-term strategic wins.

About Mango Solutions

Mango Solutions is a data science consultancy that specialises in enabling a data-driven culture within businesses, helping them derive value from data science and data analytics initiatives. It does this via a collection of products and services, delivered by Mango's team of data scientists and data engineers, which help companies use advanced analytics and AI/ML techniques to create operational acumen that improves business performance. Services include strategic advice that addresses fundamental business challenges to transform data into a business asset; data science solutions aligned to driving use case value; training and upskilling through educational programmes and data engineering to create the right analytic environment. Mango also offers products for regulated open source development, including ValidR and Data Science Radar to support world-class capability.
Visit *www.mango-solutions.com* or follow *@MangoTheCat*.

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