A WORLD SHAPED BY PREDICTIVE ANALYTICS

A DAY IN THE LIFE IN 2025

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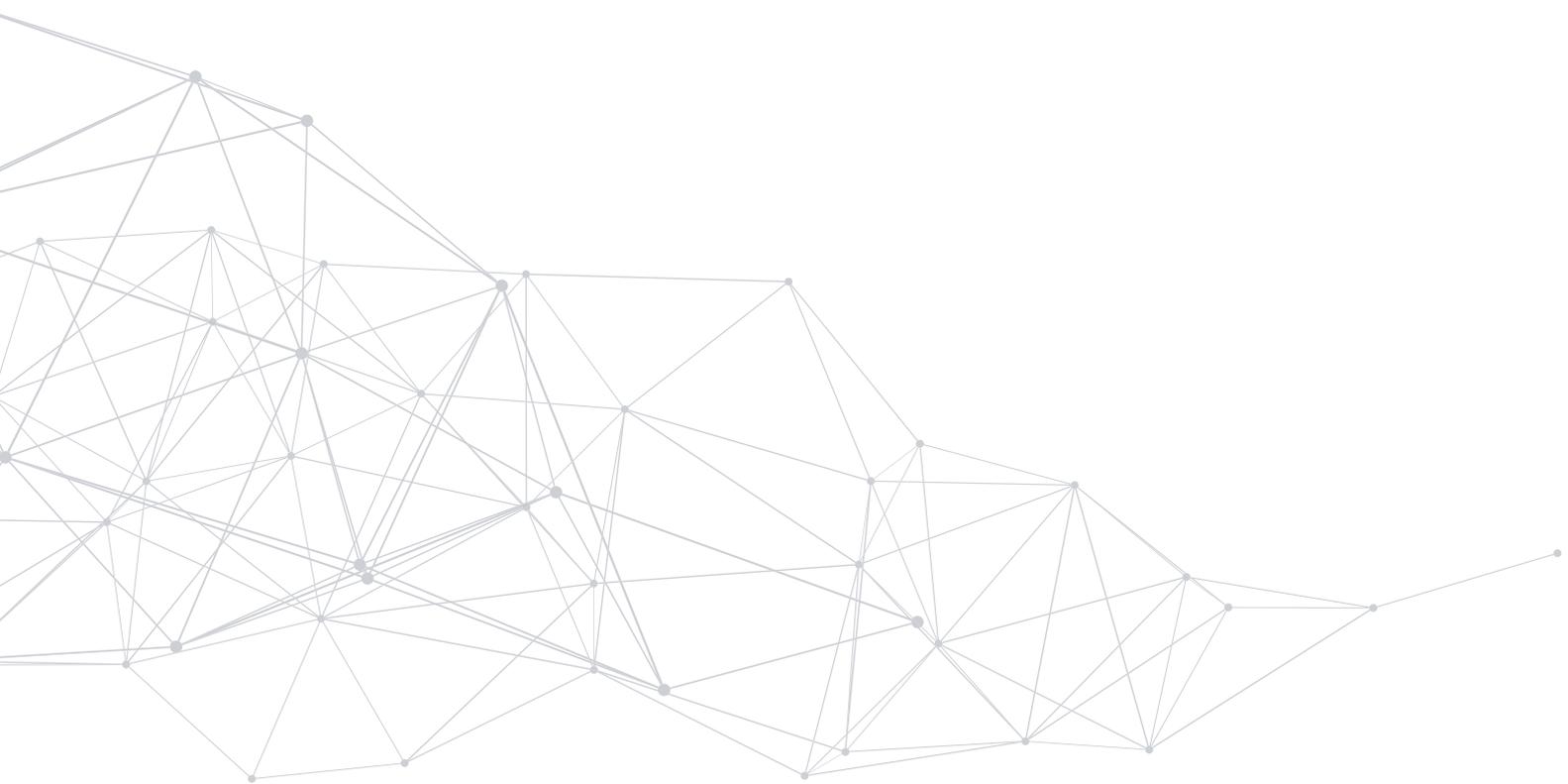
Contents

We surveyed over 350 senior executives representing customer-facing organisations, both large and small, across a wide range of industries, including transport, travel & hospitality, retail, technology, media & telecoms, utilities & energy and financial services.

Foreword

It is ten years since the introduction of the first iPhone, a device that transformed how we communicate, play, shop, bank, travel and organise our lives. Four out of five UK adults now have a smartphone and collectively we look at our phones more than one billion times a day.

The smartphone is a gateway technology to the future: it put the world at our fingertips, introduced us to AI-powered virtual assistants and encouraged us to share data in return for more connected, convenient experiences. Our comfort with the smartphone has prepared the modern consumer for the next wave of transformation and disruption which, when it breaks, will once again change how we live, work and play.

This time the disruptor will not be a single highly desirable consumer device but a convergence of technologies that will be woven into the fabric of daily life to create an ambience of intelligent computing that is with us 24/7.

We commissioned this research to understand the implications of a world where smart machines speak to one another to minimise risk, disruption and inconvenience.
The results show a high degree of confidence that today's emergent applications of artificial intelligence and the Internet of Things will, in less than a decade, be commonplace, radically changing our world forever.

Our findings also sound a health warning: delivering the highly personalised, friction-free experiences craved by the connected consumer will require access to consumer and network data, advanced algorithms and data scientists – and that access will tighten as these technologies go mainstream and consumers become savvier about who they choose to do business with. First mover advantage is likely to prove critical as consumers rapidly switch to those organisations that can deliver a world centred around their convenience and well-being. It doesn't need an advanced algorithm to predict that successful organisations will be those planning for this future now.

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Chapter 1:

2025: A day in the life

01: 2025: A day in the life

You should be celebrating. You just got a promotion and you thrive on the intellectual buzz of travelling around the world, fixing problems for those that are struggling but desperate to adapt to today's fast-moving digital economy. Yet lately you've been feeling worn-down: you work long hours and are increasingly frustrated at how much time is wasted on transport delays, fiddly admin and trying to find the right people to make your projects fly.

You've been having trouble sleeping, worried about the next pitch or whether you'll make it to the airport on time. You think there's something wrong with the boiler, but you can't afford to take any time off to wait in for an engineer. Perhaps you just need a holiday. But you seem to fritter your money away and you've a nagging feeling you're on a bad mortgage deal, yet you never seem to have time to research different options. To top it all, you feel increasingly unfit, the result of too many hours sitting at a desk or grabbing unhealthy late-night take-aways because you never have time to shop or cook. Deep down, you know something has to change and you wonder what life would be like if the advice you give those you work with about digital transformation was applied to your daily life…

6am, the morning routine

The heating comes on at 6am, using Smart Meter data based on your personal preferences and the latest weather information.

2025

2030

87% expect heating systems that adjust according to weather information and the predicted return time of householders will be commonplace by 2025, rising to **98%** by 2030

Your Smart Pillow, which registers the hormones that regulate your circadian rhythm to find the optimum wake-up time, syncs with your Virtual Personal Assistant (VPA) to access the latest real-time travel data and your diary for the day. At the ideal moment, light floods the room to make sure you wake energised and in good time to get to work.

88%

believe wake-up systems linked to real-time travel information that adjust according to estimated travel times will be everyday technology by 2025, rising to **96%** by 2030

The Smart TV switches on as it communicates with your Health Band. After checking your vital signs, the Health Band selects a seven-minute interval training workout with a virtual personal trainer to make sure you get sufficient exercise on a day dominated by meetings and travel.

Three-quarters of our respondents believe wearables that monitor vital health indicators, pre-empting the development of serious conditions and reducing the need for regular health checks will be mainstream by 2025, rising to **95 per cent** by 2030.

Afterwards, as you catch your breath, you scroll through notifications on your Health Band. You're delighted to see you've already exceeded your fitness goal for the week, and forward a notification to your VPA to book a doctor's appointment after a sensor detects some wear and tear in your knee replacement. Your Health Band also lets you know that pollen levels are high today so your implant medical device releases a dose of anti-histamine to make sure your hay fever doesn't interfere with the big pitch later today.

Time for a quick shower; you're low on your favourite shampoo and use voice authentication to buy more via your VPA.

Your packing for today's overseas trip is a breeze, guided by an app that feeds in suggestions based on scheduled meetings, weather forecast and local customs.

For breakfast you steer clear of the sugary granola after an alert on your Health Band about glucose levels – porridge, almonds and a sprinkling of berries today to ensure blood sugar levels don't crash during the pitch.

Because you'll be away overnight, your VPA postpones a scheduled delivery of fresh groceries until your return but orders the shampoo to be delivered to work so you can take it on the trip.

A notification from your VPA informs you that the driverless car will be here in five minutes; this is nine minutes earlier than expected but the predictive analytics have factored in congestion hotspots and increased traffic due to a forecast of heavy rain in the next ten minutes and that you're almost ready to leave.

The house shuts down behind you to maintain optimum energy usage for zero occupancy and switches on home security.

50%

Half our respondents expect AI medical devices that monitor patients and automatically administer medicines or prescribe treatments will be commonplace by 2025, rising to **79 per cent** by 2030

82% believe grocery-ordering systems that predict household needs based on habits, weather, time of year and consumption will be standard by 2025; **94%** expect this by 2030

Around a third of our respondents believe driverless taxi services, linking to smart homes to understand the passengers' exit time or to wider transport networks to adjust for predicted disruption, will use predictive analytics to ensure accurate pick-ups by 2025; **two-thirds** expect this to be commonplace by 2030.

The daily commute

You get an alert on the car dashboard; the location of your first meeting has been changed. The car plans the optimum new route, which includes a section of road that allows self-drive cars alongside driverless ones; your dynamically-priced personal insurance premium automatically adjusts to reflect the higher risk journey.

A

B

Nine out of ten expect services that predict not only the quickest but also the safest route to be routine by 2025

You then use the additional journey time to peruse your finances based on the overnight activity of your robo-advisor, catch up on personal calls and use a data concierge service to check you're getting the best value from sharing personal data with various organisations. You agree to share six-months of transaction data with a potential new lender – highlighted as a more secure provider – to get a better quote on your mortgage rate.

While you travel, in-car advertising is targeted to your personal preferences: you browse some new shoes but a budget app on your mobile phone reminds you of your plans to save for a holiday later this year.

2025

2030

88% believe financial intelligent management systems capable of predicting expenditure and making recommendations tailored to the individual will be prevalent by 2025, rising to **98%** by 2030

86%

believe lifestyle portals that amalgamate data across a consumer's interactions and use analytics to display the most relevant information and recommendations will be standard by 2025

With nothing else to think about, you begin to think about your pitch later today. Your Health Band registers increased heart rate and hormone levels suggesting stress. It opens a mindfulness app that encourages breathing and relaxation techniques so you arrive at your first meeting refreshed and energised.
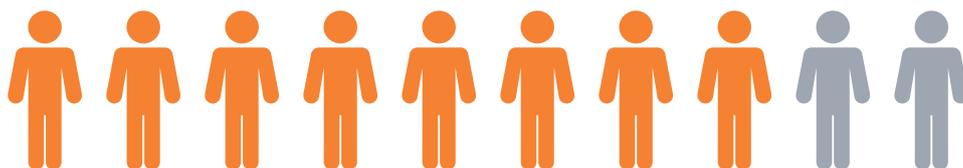
Eight out of ten believe new intermediary services, to which consumers provide permissioned, real-time access to their personal data in return for totally personalised advertising will be commonplace by 2025, rising to **90%** by 2030

At the office

After your meeting, you head to the office where you're allocated a hot desk optimised for the projects you're working on.

Although this isn't your usual office location, the i-Barrista machine connects with your Health Band and acknowledges you by name while it prepares your favourite beverage and signposts other useful refreshment locations in the vicinity with which you already have affinity deals set up by your data concierge and VPA.

At your desk, there's a check list of tasks for the day ahead, including prompts for a number of video-conference calls. An AI-powered Mentor-bot monitors your voice and heartrate, delivering prompts about how best to engage with particular clients based on data about past contact and success rates, anticipating client responses and suggesting best next steps. The calls end with a win: a potential client has agreed to a meeting next week to kickstart a new project. Your VPA automates the emails and room-bookings for the meeting.

77%
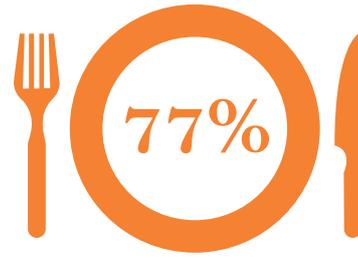
forecast automated selection of venues for business lunches based upon attendees' restaurant preference profiles, the purpose of the lunch and calendar information will be customary by 2025

Three-quarters expect the use of machine learning to automatically generate suggested responses to certain types of emails based on typical responses, calendar information and the writer's style and tone will be accepted practice by 2025, rising to **91 per cent** by 2030.

Six out of ten expect the use of predictive analytics to optimise hot desking so that people can sit next to those they can work with most effectively will be commonplace by 2025

63% said smart homes that detect plumbing and electrical weaknesses and take pre-emptive action before failures occur will be commonplace by 2025; this rises to **89%** by 2030

Three-quarters of our respondents said optimisation of the efficiency of home visits based on traffic information, predicted job length, smart home data and anticipated accessibility will be commonplace by 2025, and **73%** think that in this same time frame consumers will no longer have to wait in for home visits and deliveries because their timing can be predicted accurately and optimised for the individual.

There's an alert from your Smart Home Hub — the Smart Meter noticed a potential glitch in the boiler but has already informed the insurance company and arranged for the gas company to visit to fix the fault later today, authorising one-off biometric access to your home to take pre-emptive action.

The Health Band sends a reminder of a breathing exercise as you walk to the restaurant — selected on the basis of your client's known preferences and success of previous meetings at specific venues — for the big pitch. The presentation goes well, with your VPA updating the content with real-time data and news feeds. It's a compelling pitch for the client, and you secure a major win for the company. Within moments, there's a congratulatory message from your boss.

The business trip

You're heading to Germany for a meeting tomorrow, for which your VPA has made all the bookings and reservations based on your previous preferences. The bad weather has brought a tree down on the railway line to the airport, causing disruption to the trains; your VPA has communicated with the train company and checks whether you're happy to take a train ten minutes later to ease congestion at the station. Thankfully the train company had anticipated disruption and had already put on extra trains just in case. As a known and frequent business traveller, you enjoy fast-track last-minute check-in at the airport and can easily accommodate the delay to ensure a less-congested train journey.
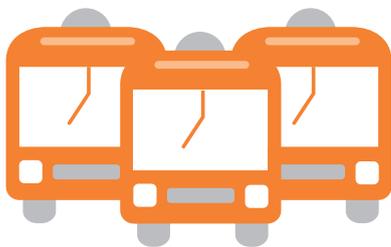
56% believe public transport will be radically more reliable through prediction of and better planning for disruptive events by 2025, rising to **80%** by 2030

71% said minimum airport check in times tailored to the individual passenger, the time of day and the airport will be routine by 2025, rising to **86%** by 2030

A world shaped by predictive analysis

The train journey gives you time to catch up on your reading; nanotechnology in the book monitors your reading pace to judge your enjoyment, then makes personalised recommendations for further reading.

Your journey through the airport is enhanced by personalised digital signage and you enjoy taking in advertising hoardings personalised to the demographic of the airport, popping into some favourite stores and picking up a drink from the i-Barrista machine.

The flight is relaxing, with an opportunity to catch up on must-see films and a pre-picked meal. Before the film starts, and thanks to analysis of your movements within the airport, you're shown an advert for the perfume you tried in store on the ground – and there's a discount if you buy onboard.

On arrival, there's a free taxi waiting to take you to the hotel – paid for by advertising – and your hotel room updates to match your home settings. You order a light dinner based on recommendations from your Health Band and then relax by watching TV. The viewing is tailored to your likes and dislikes, with even the ending of the programme tailored to your mood. There's an alert from the Smart Home Hub: the boiler fault has been fixed and the house is secure. The room goes into sleep mode at a time designed to mitigate jet lag and complement your wake-up time tomorrow. Imagine 2025: it's your life, only better.
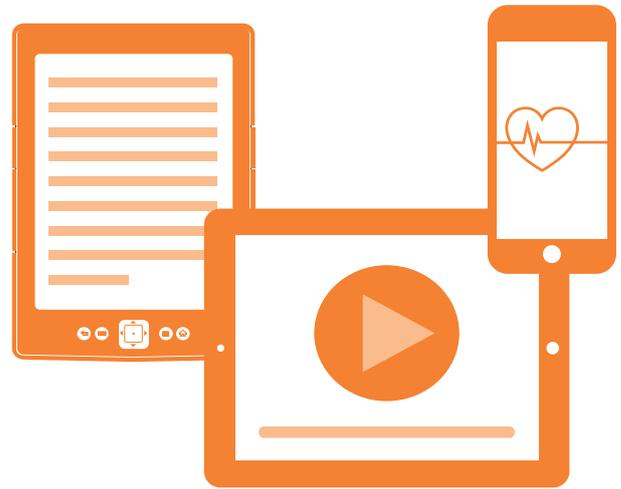
83%
said smart books that monitor your enjoyment based on reading pace in order to make recommendations will be mainstream by 2025

73%
said queue minimisation in airports through predictive analytics-driven shepherding of passengers via their mobiles will be commonplace by 2025

78%
said meal recommendations based upon real-time health data and future meal predictions will be commonplace by 2025, rising to **93%** by 2030

76%
said adverts on in-flight entertainment systems tailored to the individual passenger based upon previous purchase data and movements through airport retail outlets will be prevalent by 2025, rising to **90%** by 2030

69% said TV and film recommendations based upon past preferences and current emotional state measured via facial recognition will be habitual by 2025, rising to **83%** by 2030

Almost half believe television and film endings tailored to the individual's predicted preferences and mood will be normal by 2025, rising to **65%** by 2030

Chapter 2:

A world shaped by predictive analytics

02: A world shaped by predictive analytics

89% believe the combination of AI and the IoT will have significantly changed the typical consumer experience by 2025

The world is changing, and fast. Our survey shows that in less than seven years a convergence of technologies will transform many features of daily life: **89** per cent of our respondents believe the combination of artificial intelligence (AI) and the Internet of Things (IoT) will have significantly changed the typical consumer experience by 2025. Within a decade, our lives will be guided, smoothed and oiled to ensure life is as frictionless as possible; even our entertainment choices will be tweaked to match our moods.

Life will be safer, easier, and possibly blander as sophisticated predictive analytics identify potential pain points, smooth inconveniences and eliminate risks. Indeed, some insurers are already considering the revenue implications of a world in which many commonly insurable risks are anticipated, mitigated or even eliminated by smart machines[1].

It may sound like science fiction but this futuristic vision, backed by the majority of our respondents, is grounded in today's emergent technologies:

Smart homes: home hubs that optimise settings for energy-efficiency and comfort already exist as do devices that initiate pre-emptive action when they detect plumbing and electrical weaknesses. Boiler IQ from British Gas, for example, monitors the boiler and sends diagnostic information over the internet, typically identifying faults 19-24 hours before the customer. Repairs are fast-tracked because engineers use the diagnostics to order parts even before the customer realises there's a problem.

Smarter shopping: smart appliances can alert householders when essential supplies are running low. Whirlpool's Smart Dishwasher identifies when it needs more detergent and if the customer's mobile app is synced with an Amazon account, supplies can be automatically re-ordered. Indeed, Amazon's wi-fi-enabled Dash button will increasingly take the headache out of shopping for essential household staples by enabling one-touch re-ordering.

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1   Swiss Re believes tools such as blind-spot detection, parking assistance and cruise control will reduce accidents on motorways by 16 per cent by 2020, while next-generation driving systems could see motorway accidents reduced by 45 per cent. As a result of these trends Autonomous Research expects UK premiums to fall by 63 per cent by 2060, and motor insurance industry profits to slump by 81 per cent.

Friction-free journeys: Popular transport app CityMapper already links Uber pickups and the public transit network to make sure your Uber ride arrives in time to catch your train.

Smarter work: Routine tasks, such as emails, scheduling and accounts will be automated, freeing people up to focus on more complex tasks or roles that require the human touch. And even human interactions will be improved by applying "people analytics": wearables start-up Humanyze, for example, has developed a smart badge to capture data on how people communicate and interact, enabling companies to use the data to enhance teamwork and employee engagement, improve processes, and plan for growth.

96% believe predictive analytics is set to revolutionise the convenience of day-to-day life

The technology is there, now it's a question of consumer adoption and connectivity. Clearly our respondents are confident we now stand on the cusp of a revolution in how we live, work and shop: 96 per cent believe predictive analytics is set to revolutionise the convenience of day-to-day life.

Consumers will be fully engaged in this transformation as initial reticence to share data with third parties is overcome in return for highly personalised and friction-free experiences. One survey found more than half of UK customers (55 per cent) now feel sharing some information is a price they are willing to pay have their service expectations met[2].

Services already exist to facilitate this data-for-service trade-off: Swiss Re, for example, has invested in digi.me, a startup that lets consumers store personal data culled across various social media channels and exchange that data with businesses in return for personalised deals. Datacoup is a start-up that helps people collate their data and sell it for cash.

Some industries have already begun to reward consumers that share personal data: insurance companies, for example, offer lower premiums and other benefits to those policy holders that share behavioural data via wearables or telematics devices. By 2019 Gartner Inc expects 50 per cent of citizens in million-people cities will benefit from smart city programs by voluntarily sharing their personal data in order to receive "in the moment" value[3].

This will become a virtuous circle: 84 per cent of our respondents predict consumers will only be willing to share their data with those organisations offering the most seamless experience. Those unable to keep pace with the consumer desire for friction-free experiences will increasingly find themselves locked-out of the data bonanza and thus unable to engineer the personalised, friction-free experiences that will increasingly be the norm by 2025.

2   *State of the Connected Customer,* Salesforce, January 2017
3   Gartner, December 2016

65% worry their organisation may struggle to keep pace with the analytical sophistication consumers will come to expect…and **87%** predict a significant investment in data analytics will be required to keep pace with customer expectations

This is a wake-up call for those organisations still adjusting to the new realities of our hyper-connected world. There's a short window of opportunity to develop a compelling customer proposition in an age of extreme expectations and the predictive analytics capabilities to make that proposition a reality. Worryingly, almost two-thirds (65 per cent) of our respondents expressed concerns that their organisation may struggle to keep pace with the analytical sophistication consumers will come to expect.

There's a clear data analytics gap: 87 per cent of our respondents said their organisation would have to make a massive or significant investment in data analytics to keep pace with customer expectations. This is not just investment in systems, but also people: 87 per cent expect the cost of hiring data scientists to rise exponentially, expecting the pay of data scientists to increase on average by 50 per cent above inflation by 2025 and to double in real terms by 2030.

These escalating costs, and the challenges of accessing and retaining the necessary talent, are likely to drive organisations towards more efficient business models in order to deliver the best outcomes for customers. One model will be increased automation: Gartner, for example, believes more than 40 per cent of data science tasks will be automated by 2020, creating citizen data scientists who can bridge the gap between business users and data scientists[4]. This will not only foster a more pervasive analytics-driven environment but also increase the productivity of data scientists, who will be freed to focus on more complex analysis.

The data analytics arms race will also see organisations turn to third parties, including algorithm marketplaces, in order to close the analytics capability gap[5]. Our survey highlights this expected shift in how organisations fast-track their readiness for the next wave of digital transformation: 83 per cent of our respondents expect that by 2025 it will be standard practice for organisations to use third-party data analytics platforms that include predefined predictive models and links to relevant data sets. These pre-built, re-usable algorithms will radically lower costs, significantly speed up development processes and help more organisations rapidly innovate to keep pace with relentless disruption of a hyperconnected digital world.

83% expect that by 2025 it will be standard practice for organisations to use third-party data analytics platforms that include predefined predictive models and links to relevant data sets

4   Gartner, January 2017. Gartner predicts that citizen scientists will surpass data scientists in the amount of advanced analysis produced by 2019
5   By 2020, Gartner predicts that at least 30 per cent of Industries 4.0 projects – advanced manufacturing that draws on AI, IoT and cloud computing technologies - will source their algorithms from leading algorithm marketplaces, up from less than 5 per cent in 2016

Sopra Viewpoint: Predictive Analytics

Don't risk getting left behind in the analytics race. As our survey shows, volumes of valuable data from machines, sensors, devices and platforms will continue to grow exponentially – providing countless opportunities for companies to streamline business processes, improve customer service, and create new revenue building or cost saving opportunities.

This data will also become increasingly monetised. An intermediary market for permissioned real-time access to personal data (such as health information from wearable devices) will develop rapidly as General Data Protection Regulation (GDPR) and technologies like blockchain combine to deliver new levels of data protection and cyber security.

In this evolving data economy, customers will only share their data assets in return for a seamless and personalised experience. If you're not able to deliver this, they could exercise their right to erasure which means your data could become increasingly diluted and redundant. So how can you ensure that your organisation isn't excluded from this lucrative data market?

Start now and start small. Instead of making a large upfront investment in data analytics platforms and expensive (and scarce) data scientists, we can help you hone in on a predictive analytics hypothesis that will benefit your business, and provide a reliable analytics platform to quickly prove or disprove it. This will give you the low-cost proof points you need to build the business case to plan further investment decisions.

Alternatively, choose our innovative Analytics&Algorithms-as-a-Service (A2aaS) option to spread the cost. An estimated 40% of data science tasks will be automated by 2020, and 83% of our survey respondents expect that the use of third-party platforms will be standard practice by 2025. These platforms enable you to access high quality data science skills and drive more commoditised value from the algorithm marketplaces that will emerge. Becoming an early mover can help you gain a competitive advantage for your business today, and shape the algorithms and analytics capabilities you need for tomorrow.

If you need any help and advice about harnessing the latest technologies to get more business value from your data and analytics, or would like to find out more about Sopra Steria's Advanced Analytics Platform, talk to Andy Whitehurst who can be contacted on: Andy.R.Whitehurst@soprasteria.com

Conclusions

Recent years have seen a number of technologies, once the realm of science fiction, become manifest in our homes and offices. Consumers are increasingly comfortable with virtual personal assistants like Siri and Alexa, have come to depend on the convenience of an Uber ride and expect all organisations to offer the immediacy of response they routinely enjoy in their social media interactions. As the Internet of Things gains momentum, consumers will come not only to expect connected machines but connected services. They will be increasingly unwilling to play "middleman" in multi-party engagements: why connect to your bank to initiate and validate a purchase when embedded payment systems in your smart home can automate payment based on a voice-authenticated command?

These friction-free experiences come at a cost – and that will be access to personal data. Customers are, it seems, increasingly comfortable with the concept that sharing data means better experiences. And this comfort level is likely to be strengthened by two new trends. First, new privacy rules, such as the EU's General Data Protection Act, will empower customers to collate and trade permissioned access to data, safe in the knowledge they can later withdraw that access. Second, the application of unhackable blockchain technology to permissioned personal data could well overcome pain points of verification and security.

Organisations can no longer afford to wait and see how fast and steep customer uptake will be: services shaped by predictive analytics will be personalised, convenient and probably safer, and this combination will prove hard to resist. The time to act is now because there will be advantages for first movers, who will be able to compound the outcomes of predictive analytics and machine learning to transform the customer experience, and then capitalise on those learnings to continually innovate on behalf of the customer.

As our research makes clear, there is a significant analytics capability gap to close, but by leveraging the expertise of third parties and taking an Analytics-as-a-Service model, organisations can bridge this, ensuring that in-house efforts are focused on the customer proposition and transforming outcomes for customers. This is a time of great opportunity, for companies, for consumers, for society: act now to be part of the smarter solution for a better, safer world.

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