**experian**™

# Advanced analytics

## Our view on the future of data insight

October 2018

## Contents

## Introduction: making sense of big data

Much has been written about today's information era: the era of big data. We've all seen and tried to get our head around the various knowledge that is out there.

90% of the world's data has been created in the last two years. By 2020, the same amount of data again, will be created every minute.

It's well understood that more data brings more opportunity. But to realise that potential, you need to be able to extract the relevant insight. Before data can be used, it needs to be interpreted and understood. That's where analytics comes in. Technology has advanced just as quickly as our data universe has expanded, and today's analytics can make better sense of data – at scale, and at speed – more accurately than any human.

Data created in the last two years

Everything created before

That's all very well for big data companies, but what about wider business? To what extent are you able to take advantage of this flood of data? Some are faring better than others. Our research across businesses globally, revealed that just 35% of businesses were able to use analytics to extract insight from their data set. Quite understandably, others are feeling overwhelmed. Four in ten businesses admitted they were struggling to cope with the volume and complexity of data. Half said they weren't able to use their data to drive decision making, while 71% named enhancing their analytics capability as a top priority for their business.

We don't want to talk about the technicalities here – that only adds to the growing sense of confusion around advanced analytics. We believe it's far better to focus on the opportunities it presents and the problems it can solve, as well as how we can help.
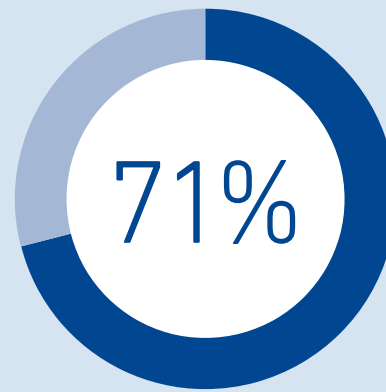
This is what we will cover in this paper; where the opportunities lie, and how businesses can access these.
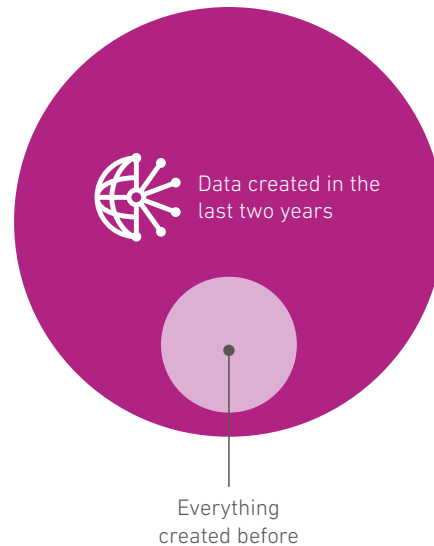
**Four in ten** businesses admitted they were struggling to cope with the volume and complexity of data

## 35%

of businesses were able to use analytics to extract value from their data set

## 71%

named enhancing their analytics capability as a top priority for their business

## What is advanced analytics?

When we talk about advanced analytics we're referring to a broad range of cutting-edge computing techniques created to give businesses greater insight into their data. Machine learning is a subset of Artificial Intelligence, as is deep learning or nueral networks, not something different. They are all algorithms.

However, as a descriptor 'advanced analytics' is slightly problematic, because like the similarly vague 'business intelligence', it's more of a marketing term than a technical one. In other words, it's open to the interpretation of the software companies offering it. And with lots of voices talking about techniques like machine learning and artificial intelligence differently – and sometimes inaccurately – there's a lot of confusion out there.

Businesses can choose from a wide range of available analytics techniques and analytics-based tools. But in our view, these options are creating so much confusion that many businesses could shy away from the opportunity altogether, which is evidenced in our research where they don't know where to start. As a result many prioritise data management and processing over data insight and understanding. There needs to be a priority on both aspects. Amidst the industry hype, we risk losing sight of what analytics are there for; understanding customers better. And by being able to do this, the opportunities for all; people and business – are huge.

### How analytics has changed

Part of the hype is due to the fact that predictive technology, like artificial intelligence, sounds new and exciting. But while the potential is huge, the concept isn't all that new.

Analytical techniques have actually been used for decades, an obvious example being predictive modelling that powers scorecards, segmentation and more. More recently we have seen the transformative potential of advanced analytics help solve some of society's biggest challenges, from developing specialised medical services to combatting crime networks. It's part of our everyday lives, too. We talk to virtual assistants; our cars are connected; our email servers can automatically detect spam. These technologies are already out there. It's just that most service-led businesses are a long way from maximising the potential due to, in many cases, being unsure how to go about it.

We see a lot of investment in small, specific tasks. However, to maximise the opportunity on a bigger, more strategic scale, there is an opportunity presented today from the combination of data, analytics and technology.

It is true that the role of analytics has evolved. Traditionally analytics has been about prediction. Today, it's more about optimisation – making the best possible choices, in every situation, quickly and accurately. While data analytics was previously used to solve existing problems, today we begin with data and use it to uncover patterns, spot anomalies and therefore problems, and predict or identify new opportunities. Data analytics are highlighting trends and problems many never knew existed.

> People used to say that information is power, but that's no longer the case. It's analysis of the data – the use of the data, the digging into it – that is the power.

## The opportunity

Experian isn't a tech company – we're a data company, and always have been. But we've always used analytics to understand that data, make better decisions and drive better customer outcomes to make the data valuable for all. To turn the data into valuable insight that can be acted on through decision management. The difference today is the techniques are more sophisticated and computing power is also available.

Today's big-data economy, demands speed and accuracy of processing. Equally, today's customers demand personalised, value-added services and interactions. Analytics can help businesses on both counts.

### Changing society for the better

More than that, we believe advances seen in analytics can help society as a whole. By categorising a person, or small business's bank transactional data for example, we can get a more accurate picture of what they can actually afford to pay each month and understand trends based on their historic behaviours. For example any seasonal trends for a business' account, or how an individual has managed their finances historically.

We can also incorporate economic foresight to get a better view and better predict any future impact or change. By doing this we can make credit more inclusive and fair, as well as give more vulnerable people access to the services they need.

Such is the potential for the way we work and live, that the UK government has committed to make the UK a world leader in the fields of artificial intelligence. This is an opportunity that each and every business can grasp.

> Analytics must be able to solve problems, be predictive and implementable. It must be transparent to the customer and to the business. This is actually the hardest part, to paint a picture – to show a picture.

Analytics can be used to:

**Drive a fairer credit economy**

Those with limited credit files represent a particular challenge for many. Analytics can combine a wide range of data sources to understand a person's true financial position for those with, or without a credit history. In addition, consider the factors that are likely to affect their ability to pay, or service the product throughout lifetime. This results in fairer decision making and better access to credit for all.

**Make more accurate faster decisions**

Analytical processing can aggregate, categorise and understand data to make and automate fair, intelligent decisions. Advanced analytics, within decision management technology can provide an architecture that can ingest disparate data, apply the right logic and automate it through a single decision flow.

Automated decisions can enhance all process based KPIs, but also take the input through to a decision, then to the customer in an instant.

**Identify people more accurately**

Analytics can confirm whether a person is who they say they are, helping you eliminate the risk of fraud. It can also help you better understand each customer's data profile, know when data can be enhanced or signify any problems seen in the data. It can help you understand a variety of specific traits, from device insight to spending, online or behavioural insight. This allows you to deliver the kind of hyper-personalised service today's customer's expect, and understand any specific risks, tailoring the experience accordingly.

## The challenges

There are several reasons why businesses are struggling to unlock the insights held within their data:

**1** **Data volumes and data-quality struggles**
As we saw in our research, many, if not most businesses, are overwhelmed by the sheer volume of data at their disposal. Data quality is an issue too, with most analytical teams' time spent on basic data cleansing and management as opposed to more sophisticated tasks that build on this. This isn't helped by disparate systems and processes, which mean analytics are only being applied against specific tasks, as opossed to holistically.

**2** **The difficulty in maintaining a single customer view**
Analytics are only as good as the data they feed off – and data changes fast. Some businesses may have achieved a single customer view. But to maintain it, you must continually assess your data quality against validated data sources and update and refresh your data assets regularly. This can help to create a universal customer view that is constantly maintained, which provides a better base that isn't restrained to insight from a single point in time.

**3** **The data skills gap**
The skills gap is a well-reported issue. Many businesses are struggling to build teams that can spot opportunities in data, develop them and take them to market quickly enough. We don't envisage any skills shortfall will be filled by machines, as some suggest, rather that new jobs will be created to support with maintaining your data architecture and data insight strategies. With the right access to analytics; through technology for example, it can empower non-scientists with a more purposeful tool kit for the task at hand.

## 4 Lack of investment

Businesses have many goals. One is to enhance fraud detection and decision making through advanced analytics, another is to on-board more customers and to enhance the digital experience. Since getting customers through the door is a priority for many, acquisition teams are likely to receive more investment than fraud teams. What should matter most is making sure you get the right custom. Failing to manage company-wide objectives will eventually see profits erode and vulnerabilities brought into systems. There is an opportunity with the right analytics to create and orchestrate a data insight strategy that benefits everyone and underpins an entire enterprise, giving broad business benefit.

## 5 Lack of understanding, and control

One of the final barriers to explore is the challenge around lack of understanding. Non-data scientists can feel bewildered at the sheer complexity surrounding advanced analytics. We see businesses that are unclear on where to start and, in some instances, unclear if they will retain control. Analytics are used in many ways; whether independent through specific tasks, or accessed by systems, or through systems. With a solution that can offer flexibility for the user to manage and understand, control of the actions will always remain in the hands of the business and therefore you can maintain an understanding through receiving more informed insight, giving you more control over growing new opportunities.

## Making analytics accessible

Dealing with digital developments requires an adaptive, agile approach. In a competitive world, it's imperative to be able to spot opportunities, assess ideas quickly, and test and learn.

We believe analytics needs to be much easier for businesses to access, and that you shouldn't have to independently invest in this, or be a data scientist in order to benefit. Instead accessing the tools and expertise you need to understand the opportunities for your business will be beneficial in the long-term as change occurs, and new developements occur. By being able to access sophisticated techniques, which are continually invested in and contain the highest level of sophistication, will be hugely beneficial for every business moving forwards.

When the industrial revolution decentralised power, it made electricity from the factories available to the masses in a way that fundamentally changed society. Today, we're decentralising data. We're taking data from a central repository to give more businesses access to it in a controlled, secure environment. We're confident that when businesses are able to experiment with data and analytics in that way, they'll be able to access insights that transform the way they work.

## Experian analytics: The spectrum of analytics
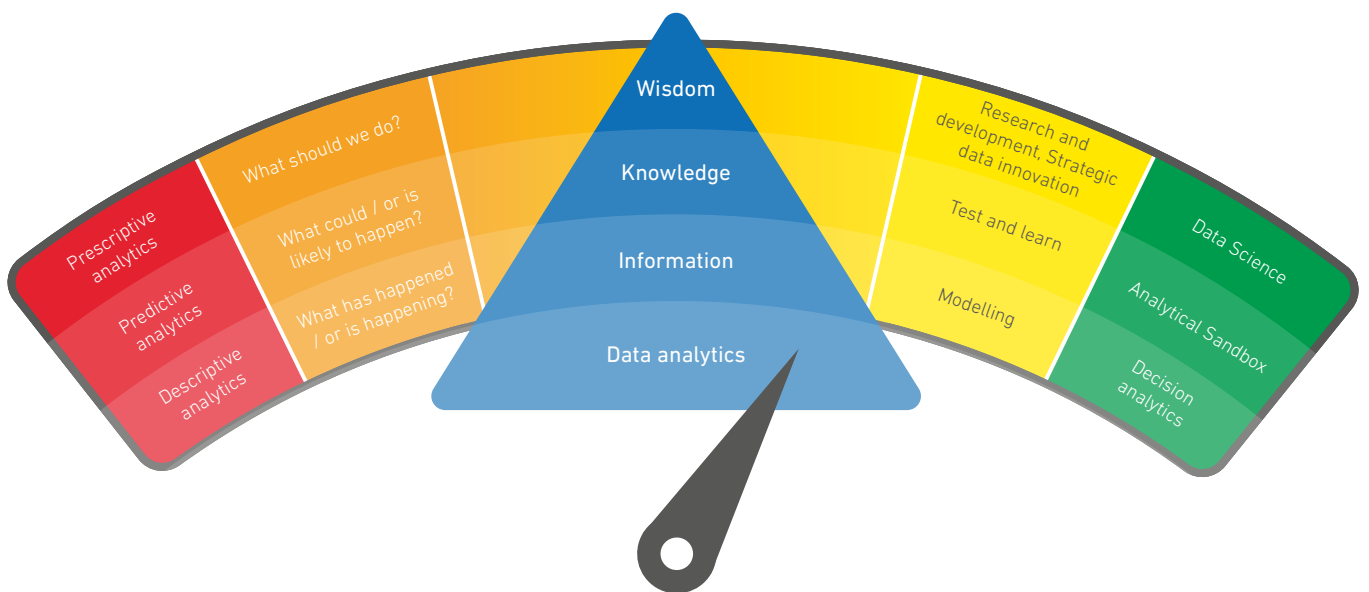
## To maximise the opportunity you need to be able to access:

### Analytical modelling

To get the most from data there is a need for analytical models. With the right ones, you can extract, interpret, segment, benchmark and model your data, but also enhance it by bringing in new, different data, to have a better quality baseline of data. In addition, other analytics tools such as scorecards, propensity models, customer profiles and more can be equally beneficial when you are looking to automate such insight.

### Research and development

Research and development is critical if you are to maximise the opportunity presented by data, disparate data, and new alternative data. This however requires continued investment and specialised expertise which can be a strain on businesses without a clear ROI from it. It would also be an advantage to businesses to be able to connect different data to ensure that the data being used is the best quality it could be for the task. By doing so this can bring in additional insight that can help solve problems, and develop processes more accurately – and fast.

> Our data scientists use machine learning, artificial intelligence and deep math to generate new models and insight from data. They are all techniques one of the same.

### Test and learn

Test and learn is essential if we are to maximise the opportunity of problem solving and finding new ways of enhancing business tasks and growth, but also understand more thoroughly where the opportunities are. By having the right access, you can connect data, apply advanced techniques without necessarily having the knowledge of a data scientist, yet in a controlled, safe environment. More importantly this can be done in parallel to standard business on a segment of data. When results have been proven in this scenario, the process can then be moved into the live business environment.

### Innovate

As we move forwards we will no doubt see many more innovations come to market. We will discover new problems that need to be solved. How we do this will continue to evolve. Innovation can happen in many ways and by many approaches. By being able to access the expertise that can help you with innovation – as well as drive it, you can transform your everyday practices and deliverables. To innovate requires an understanding of the opportunity available. This insight is contained within the data. You can understand the likely success of a new product launch, or market entry by connecting data, such as bureau data, scenario plan and test the thesis and deploy live, with a known return, in a day. Equally more advanced projects can help you strategically innovate, creating new thinking and new opportunity.

> For the fifth consecutive year, Experian has been named in Forbes Magazine's Top 100 list of the world's most innovative companies. At Experian, innovation sits at the heart of our global culture.
>
> **Forbes**

## FACT: putting the customer at the core

New technology brings added complexity. How can we ensure machine learning is used responsibly? Within anything we do, we use the FACT approach, meaning any output must be fair, accurate, customer centric and transparent.

**F**

### Fair

Fairness in artificial intelligence and machine learning means tackling bias that may exist in both the data being analysed and the algorithms it's being exposed to. The concept of fairness should be built into the design. Businesses should be able to resolve any issues of bias to ensure any processes and outcomes do not discriminate on any grounds such as sex, race, religion, disability or colour.

**A**

### Accuracy

Accuracy is achieved by identifying, recording and articulating any sources of error or uncertainty throughout the algorithm, including its data sources. Advanced analytics can deliver far better accuracy than humans, and greater accuracy leads to better outcomes.

## C

### Customer

A good rule for today's businesses is: don't find customers for your products, find products for your customers. The customer needs to be at the heart of any task. Any analytics strategy should focus on the individual and better identify their wants and needs. Any output or objective needs to be centred around what's best for them.

This is an ongoing process. People's needs and wants change – and can do so fast. Some life events are not predictable but data can identify a change. Some are predictable and the data can be prepared for this change. This insight needs to be fed back into systems to be able to better design the right journey for each customer at the right time, through the right channel.

## T

### Transparency

Transparency is critical. With people being more hesitant to share their data, businesses must be clear about how it's processed and used to make decisions. All communications should be simple and jargon free.

It's also important to help third parties understand the algorithm's behaviour and allow them to monitor, check and review it. That means detailed documentation, suitable APIs and permissive terms of use are essential. You should therefore ensure this is accessible in any analytical task or service used. Being able to explain the machine learning algorithms used to make a decision is also an important consideration.

## Conclusion

Right now, where businesses are using artificial intelligence including machine learning, they're mainly using it to comply with regulation, as opposed to using it to its full potential. If used correctly, this technology can enhance every Key Performance Indicator (KPI) too – while supporting compliance.

In a competitive market, efficiency is key and value is crucial. Advanced analytics allows you to process decisions more efficiently and remove, or negate, the need for manual intervention. It allows you to better personalise your marketing to the right people, who will be most rewarding to contact. It leads to more tailored journeys and less manual intervention. It can better distinguish genuine people.

In some instances, this insight is far beyond that which the human mind could comprehend.

For people, the key benefit is better experiences – experiences underpinned by customer-level data on interactions, transactions, consumption and sentiment. Product development, proposition design and pricing decisions can all be informed by real-time data on a customer's behaviours, reactions and preferences that is connected and fully understood.

### From big data to actionable data

The shift in the balance of power from businesses to customers is more apparent today than ever. Expectations are high, and businesses must meet them or risk losing the customer to an organisation that will. This is a huge opportunity for society as a whole.

Fast data that can be acted on will replace big data. The data many businesses now access is often fragmented and outdated, held on disparate databases. The key here is look at what data you have and what problems you need to solve, rather than trying to digest and combine everything.

The urgent need to turn data into usable insights means many businesses will engage external resources to achieve their goals. Implementing an advanced analytics strategy requires more than just technology. Your organisation will get the most out of it when it adopts the right processes – can access and understand the insight brought by analytics and how such wisdom can support the customer journey.

Authors:

### Javier Campos Zabala

**General Manager,
UK&I DataLabs,**
Experian

Javier is responsible for overseeing innovation with emphasis on the development of new products and services across these regions. His aim is to pioneer the application of artificial intelligence in mobile, voice, fraud, credit, marketing, social media, digital advertising and healthcare.

He is a frequent speaker at industry conferences, with over 26 years' experience globally within the finance, artificial intelligence, market research, media and technology fields including serving as Global Chief Technology Officer at Kantar-WPP, Havas Media and CIO at GroupM-WPP.

### Micah Willbrand

**Product Director, Identity,
Fraud & Payments**
Experian

Micah joined Experian in May 2018 from Nice Actemize where he has been General Manager for their global anti-corruption business lines and prior to this was Global Director of Risk at Accuity and Lexis Nexis. Micah enjoys working with organisations to identify effective practice to mitigate identity theft, fraud and other financial crime risks. He has also worked within the Experian UK&I team from 2008-2010 to help establish the fraud and identity business as the Head of Identity Verification.

### Paul Russell
Head of Analytics,
Experian UK&I

Paul is responsible for proposition development and pre-sales activity across credit risk, marketing and fraud.

He has more than 25 years of experience of data-driven decision analytics and during that time has designed and delivered complex, integrated decision management solutions across the customer life cycle. Paul has developed specialist expertise in data science, predictive modelling; strategy definition and monitoring; regulatory analytics and stress testing under Basel II/III and IFRS 9 and international consultancy.

Most recently Paul has developed an interest in machine learning and new sources of data and the issues of utility and privacy arising from these development as they affect consumers and businesses.

### Scott Hardiman
Director of Analytics
Experian UK&I

Having worked for Experian for four years, Scott leads UK&I analytics for Experian. His remit includes leading the business strategy for analytics but also directing analytical proposition development. Most recently Scott has led the work for our Ascend proposition which creates an environment for our clients to maximise the use of highly sophisticated analytics, and Experian data assets within a safe and secure environment. Prior to joining Experian, Scott was a Commercial Director at Accenture. Scott was accountable for finance, contract and PMO teams on large technology outsourcing deals. His past career has largely consisted of commercial roles, focussing on reducing risk and maximising margins.

19

## Experian analytics:

In todays 'big-data' economy, that commands speed and value, the need for analytics is critical. Advanced analytics, comprising of varying techniques including machine learning can extract insight from data on a level that far surpasses human ability. In the data-fuelled future this is important. In an era where customers command value in every interaction, this is important. Equally important is being able to do this at speed, at scale, fairly and accurately. Advanced analytics are a force for good, when used appropriately. We believe that everyone should have access to analytics when creating new thinking, new models and new learning. We believe we are the experts who can offer this.

### How Experian can help:

Advanced analytics has been used in many forms for many decades. Today we see new data, and a faster transit of data. We see analytics techniques develop at an equally rapid pace and can equip you with the appropriate data and tools for the task – that are fit for purpose and able to better deliver positive outcomes through better insight, at scale, and at speed. We can help by making analytics accessible. Whether that be for test and learn, research and development, or through intelligent pointed tools. We can also integrate our data, varying data, to offer a better level of validation and a better base of data quality. Decisions can be made with more accuracy, faster and more fairly. We can help to extract the true insight from data, equipping you with the knowledge you need achieve the best customer outcomes possible

**Contributing authors:**

Javier Campos Zabala

Micah Willbrand

Paul Russell

Scott Hardiman

**Registered office address:**
**The Sir John Peace Building, Experian Way,**
**NG2 Business Park, Nottingham, NG80 1ZZ**

**T: 0844 4815 888**
**E: gtmcontactus@experian.com**
**www.experian.co.uk/identity-and-fraud**