

Data analytics

Delivering intelligence in the moment

January 2014



Our point of view

Extracting insight from an organisation's data and applying it to business decisions has long been a necessary capability to support forecasting and business planning. But in the last few years, data analytics is appearing more and more as a top priority issue, perceived as critical to unlocking future growth, managing cost and decreasing risk.

The key driver of this change of focus has been the digital revolution. In the past, digital business meant e-commerce. But the rapid rise of mobile smart devices, networked sensors, social media and cloud computing has re-defined 'digital' and opened up new opportunities for analytics of the big data created.

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

Sir Martin Sorrell
CEO, WPP Group

Technology changes fall into four areas:



Social media



Mobile smart devices



Analytics



Cloud computing

The digital data explosion

At PwC, we believe that the explosion of digital data is currently revolutionising business, fuelled by four key areas of technology change.

Technology changes in **social media**, **mobile smart devices** and digital sensors are creating new digital data sets both within and external to an organisation – as customers purchase, consume and interact digitally and operational processes are tracked and monitored digitally. This data explosion has combined with technology change in low-cost **cloud computing** and storage capacity, enabling **analytics** that would previously have been technologically impossible or economically impractical.

Historically, corporate analytics has focused upon financial and operational data, sourced from ERP and other corporate systems, plus a limited amount of customer data from CRM systems.

This has been almost exclusively structured data, stored in traditional relational databases. Digital advances have created a much greater variety of data sources, many of which are unstructured and relatively sparse – requiring processing capacity to identify and extract the hidden nuggets of insight.

Consumers – especially the digital native generation who have grown up in the digital era – are creating larger and larger digital footprints. Similarly, business processes are now creating their own digital data streams – from financial trading data to information across a manufacturing process or end-to-end supply chain.

Organisations of every type are now expecting their business decisions to be based upon robust data analytics as opposed to intuition and experience. Decision-making is expected to be close to real-time and deeply embedded into day-to-day operational processes.

Move with speed, operate with trust

Dealing with these digital developments requires an adaptive, agile approach to creating strategies that succeed. Disruptive innovation and constant improvement are becoming standard practice. Data analytics and insight extraction are now core skills for business success – allowing organisations to be quick to spot opportunities, quick to assess ideas and quick to test and learn from these experiences.

It is also critical to understand the power of data when things go wrong. Mistakes are made faster and the sheer volume of data creates new challenges around security and fraud. Organisations must be able to minimise risk, comply accurately with regulations, respond promptly to incidents and have trust in their data at all times. Trust in data is required across the whole digital value chain – spanning technology, data, process and people.

Data analytics to deliver business value

The power of data-led insight today, is its ability to add business value to every part of the value chain and to every area of business decision-making.

Data analytics can generate business value by improving **operational efficiency**. Every operational process can be understood, simulated and refined – from optimising the use of fixed assets to anticipating and rectifying points of failure. Business challenges around managing supply chains in response to variable demand patterns, and optimising procurement offer huge potential for value creation in most organisations.

The management of customer relationships and delivery of **customer experience** is similarly being transformed by a richness of customer-level data on interactions, transactions, consumption and sentiment. Product development, proposition design and pricing decisions are being informed by real-time data on customer reactions and preferences. Customer-centric decisions and reliable demand forecasting and planning, enabled by data and insight, are becoming the distinguishable features of organisations that know how to grow their top line.

It is important for all organisations to **understand and manage risk** – both in their day-to-day operations and strategic decisions. The information available from big data is making it possible to assess risks that were previously thought to be unquantifiable. This creates an opportunity for organisations to better manage their risk and ensure appropriate return is being achieved for the risk taken.

The organisation that embraces the digital opportunities continuously innovates, understands and makes the most of the potential of new business models – and uses data and analytics as a core enabling capability. At a most basic level, these organisations exploit the latest technologies to deliver better e-commerce experiences for their customers and integrate their e-commerce channels and operations into the fabric of their businesses. But increasingly, they also exploit information about how their customers are actually using their products and services to build new propositions and help customers achieve their personal goals. Digital therefore becomes a catalyst towards customer-centricity – with organisations using insight to focus on customer outcomes and needs to tailor their products and services to meet them.

Intelligence in the moment

At PwC, data is at the heart of everything we do, and we have significant experience in all disciplines of data, from collection, cleansing and management through to building analytical algorithms and visualisation tools. However, the real power of data lies in creating actionable insight – and applying this insight to transform every operational and strategic process of an organisation.

At PwC we firmly believe that this can only be realised by combining analytics skills with deep industry knowledge and understanding. Our breadth and depth of industry expertise allows us to ask the most relevant questions and to apply data analytics with maximum precision and impact.

Our data analytics framework

Whatever the business issue, or industry sector, organisations need seven key building blocks to identify and release insight from data. These building blocks are, in our experience, complementary and work iteratively and in combination to solve any particular business challenge.



Data analytics framework



Discover

What value exists in your data?

We help you set your data and analytics priorities by:

- Evaluating the data you currently have available, its quality and what you can – and can't – do with it, to build a clear view of its potential business value.
- Supporting you with data collection, preparation and cleansing, if needed.
- Completing basic techniques to help identify data potential – including profiling, segmentation and benchmarking.

Assure

Can you trust your data?

It's essential to have trust and confidence in your data and the systems that collect and hold it, to allow you to actively manage data-related risks in your

business. In the digital era, businesses must be digitally trusted – by customers, suppliers and all business stakeholders.

We help you to do this by:

- Reviewing your data sources and data management practices, including security and identity/privacy issues, quality assurance and regulatory compliance, to give you confidence in the integrity of your data.
- Reviewing your business systems to ensure that the right controls and monitoring practices are in place to maintain confidence in the data they produce.
- Re-performing your business processes to check the accuracy of information being reported.

Describe

What happened and why?

We help you discover the insight hidden in your data to understand what happened and why, by:

- Designing and delivering business information output with user-friendly interfaces to show what is happening in your business.
- Combining data sets that have often never been linked before, to reveal trends, patterns, triggers and causal relationships to begin to explain the important 'why' questions.

Predict

What might happen next?

We help you use your data to anticipate and predict, to allow you to plan effectively, by:

- Using data patterns from the past, combined with industry and company knowledge, to more accurately anticipate the future.
- Building close to real-time predictive analytics solution – with new data constantly updating and improving predictive outcomes, designed to be automated and embedded into your business processes.
- Helping to identify and predict very specific hidden activities – such as fraud and market manipulation if these are considered potential risks.

Optimise

What is the right answer for your business?

We help you discover the right answers for your business by:

- Evaluating the descriptive and predictive insights available and completing incremental analysis to find the optimal solution to your business problem, given your specific constraints and business priorities.
- Optimising aspects of your strategy or operations, including fixed assets or resources, optimising the balance of risk and cost efficiency, or optimising treatment strategies at an individual customer level.

Empower

Is insight being delivered to the right people at the right time?

We help you make sure that the right data and insight is being delivered to the right people at the right time, by:

- Working closely with you to understand the key people who need access to data and insight in order to drive and sustain business change.
- Developing the most relevant visual and interactive outputs to meet the different business needs of these audiences – from 'C' suite dashboards, to data 'drill-down' solutions for operational managers, to key customer insights delivered to the screens of call centre agents.

Embed

How do you embed data analytics into your organisation?

We help to embed data analytics into your organisation, by:

- Advising on the integration of data analytics systems into the broader eco-system of your organisation, to automate the application of data insights in your day-to-day business processes.
- Designing the integrated set of capabilities you will need to become effective at data analytics – covering technology strategy, analytics and visualisation tools, process and operating model evolution, people and training needs.
- Providing managed out-sourced services – supplying on-going solutions to your organisation, encompassing data hosting, analytics and business recommendation.

The way we work

Data analytics is a critical business discipline that creates the insight necessary to help solve complex business challenges. It's a skill and approach that we use in all situations where business value can be gained. It is therefore typically a key component of a lot of our work with clients – even if the engagement focus is often not specifically data analytics.

Whether delivering standalone, or as part of a broader project, we work with our clients, using the seven building blocks outlined above, in different combinations to meet their unique needs. Some clients need our support across the full range of skills and activities. Others require focus upon a single activity, or small cluster of activities, only.

We increasingly work with clients throughout their data analytics journey, over many months or even years, by providing support at different stages – from identifying the potential in their data, building business cases for investment, demonstrating the value to be realised via delivering pilot analytics projects, developing incubator in-house capability, right through to helping clients build mature and embedded in-house capabilities for data and analytics.

Our data analytics framework can be applied to a range of business priorities. We work with our clients to understand the unique set of challenges they face. Through applying our framework to our client's situations we help to unlock the potential of data analytics to transform a business.

Key contacts



Tom Lewis

PwC UK Data Analytics Lead

T: +44 (0)20 7213 5911

E: tom.e.lewis@uk.pwc.com



Yann Bonduelle

Consulting Data Analytics

T: +44 (0)20 7804 5935

E: yann.bonduelle@uk.pwc.com



Michel Abbink

Actuarial Consulting

T: +44 (0)20 7804 0919

E: michel.abbink@uk.pwc.com



Paul Smith

Data Assurance

T: +44 (0)121 265 5747

E: smith.paul@uk.pwc.com



Anthony Bruce

Tax & HR Analytics

T: +44 (0)20 7213 4524

E: anthony.bruce@uk.pwc.com



Kirsten Turner

Assurance, Audit Transformation

T: +44 (0)20 7804 6968

E: kirsten.turner@uk.pwc.com

www.pwc.co.uk

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131129-114343-SY-OS