

The Connected Business

Wednesday June 26 2013

www.ft.com/reports | twitter.com/ftreports

Big data put under the spotlight as never before

Analytics can remove the guesswork from decision making but companies must know what information they need, writes *Paul Taylor*

Data are the raw materials of this age of information, whether in such structured form as ATM transactions and till receipts, or unstructured such as trends on social media feeds and sites.

Business intelligence and data mining and warehousing applications enable companies to gain insights from information that has mostly been generated internally. Modern analytic techniques, including examinations of "big data" – the mass of information generated by all kinds of commercial and other activities – expand this concept by asking questions of both internal and external information almost as soon as, and in some cases even while, it is being generated.

Companies are using these tools to improve business efficiency, spot

trends and opportunities, provide customers with more relevant products and services and, increasingly, to predict how people, or machines, will behave in the future.

For example, General Electric's customers are using its Proficy Monitoring & Analysis Suite, an integrated set of software for industrial data management and analytics, to monitor equipment and process data to improve performance.

GE's Proficy Historian HD, one of the six software modules in the suite, lets companies store very large data sets in a Hadoop cluster (many machines running open-source software Hadoop that can handle massive amounts of unstructured data) and then run advanced analytics on huge amounts of data to improve performance, troubleshoot problems, and



predict and prevent failures in machines such as turbines or jet engines.

"We use the software ourselves in our own monitoring and diagnostics centres to manage trillions of dollars in asset value," said Brian Courtney, general manager of GE Intelligent Platforms' Industrial Data Intelligence Software group.

The market for business intelligence, corporate performance management and analytics applications and performance management software – much of it provided by the "big five" of SAP, Oracle, IBM, SAS and Microsoft – has grown rapidly. Spending totalled \$12.3bn in 2011 and grew about 7 per cent last year, according to research company Gartner.

Many companies use business intelligence software to provide their senior executives, sales staff and other managers with access to key performance indicators such as costs, sales and margins.

Among the leading trends in the market for business intelligence software is the increasing call for screen-based visualisation tools, such as dashboards, to make financial and other data more accessible to executives on the road via smartphones and tablets.

"We saw a new way to engage with people and democratise data," says Quinton Alsbury, founder of Roambi, which provides mobile business intelligence visualisation software for iPhones and iPads.

Pret A Manger, the sandwich retailer, uses Roambi in the UK to augment its traditional business intelligence software and has provided 70 field and regional managers with iPads. Staff can carry out stock takes while they are on the move instead of leafing through a 200-page paper file, or they can monitor kitchen production while standing on the shop floor.

Similarly, SiSense's Prism 10X software is designed for companies that have outgrown Microsoft Excel and need an integrated analytics suite capable of handling huge volumes of data without having to rely on the IT department for assistance.

Perhaps the most dramatic trend has been the move from data mining

Continued on Page 2

Inside »

Discovery for all

Use of intelligence tools cascades down the corporate layers

Page 2

The treasure is in the detail

Terms you need to know in business intelligence era

Page 3

Get on the cloud

Online access cuts costs and speeds up the delivery of projects

Page 4

On FT.com »

Profits lost

New age confronts the finance industry

ft.com/podcast

Visualisation

Seeing is believing for companies that employ fresh ways to look at the world

ft.com/reports

RUN

on a first-name basis with millions.

Imagine if you could make each and every customer feel special — no matter how many you have. SAP analytics solutions can help turn mountains of structured and unstructured data into powerful predictive intelligence, helping you excite and delight your customers in ways they never would have expected. So whether they're in-store, online or on an app, they'll always feel the love.

Run like never before at sap.co.uk/runanalytics

RUN BETTER.

The Connected Business

All aboard for journeys of discovery

Management

User-friendly formats allow less technical staff to explore information more easily, writes *Jessica Twentyman*

A significant shift has been taking place in the audience for business intelligence tools. Traditionally, highly technical users in information technology departments have used these tools to produce descriptive reports and queries for other employees. Now, the trend is towards a mixture of software and devices that allow less technically skilled staff to make diagnostic analyses based on their own explorations of data.

Such thinking is changing the way companies invest in business intelligence tools, according to Dan Sommer, an analyst with IT market research company Gartner.

The latest "data-discovery" tools were pioneered by business intelligence specialists such as Tableau Software and Tibco Spotfire but their success has prompted others to enter the market. Large providers such as MicroStrategy, Microsoft and SAS have built or acquired their own data-discovery tools.

These make exploring data a more intuitive process for non-technical users. In particular, most offer visualisation features that allow data to be presented in formats such as graphs, maps and dashboards, says Peter Lumley, a business intelligence expert at PA Consulting.

His team has mixed supply chain data with a map of a client's warehouse to create visual displays that show staff how well stock and delivery processes are working and where problems occur.

"Data discovery is all about turning data into actionable information, at the point of need, by presenting it to users in way that is more appealing, more engaging and generates more insight," Mr Lumley says.

According to Mr Sommer, such systems are rapidly becoming a mainstream part of corporate business intelligence and now play a central role in companies' plans to refresh, upgrade or overhaul their data analysis processes and systems.



Last year, Aggregate Industries, the construction materials company, decided to retire its elderly business intelligence platform and replace it with data-discovery tools from an external provider. Mike Gibbons, Aggregate's chief information officer, says the aim was to make business intelligence a "self-service function".

"We wanted to give users in the business more power. We wanted them to be able to go off and get the answers they needed without a helping hand from IT or a call to the service desk when they got stuck," he

says. "But above all, we wanted an approach that would allow users to explore more data, more frequently, and dig down into it more effectively."

The tools were provided for executives in the form of an application that enabled them to explore the monthly financial performance of their divisions and compare their costs and profits with other business units.

Another application allows sales managers to measure customer loyalty, not just on the basis of how much individual customers spend, but also how quickly they pay invoices.

Fast track: Frankfurt airport analyses flows of passengers with greater frequency than before

Getty

The introduction of high-performance analytics at Frankfurt airport in Germany is helping to increase the frequency of passenger flow analysis from just once a day towards two to three times an hour, says Dieter Steinmann, senior manager of information and communications services at airport authority Fraport. An estimated 57m passengers a year move through the airport's terminals. The company is working with its analytics provider to add a data-discovery layer that will enable Mr Steinmann and his colleagues to apply relevant analytic apps more widely – to ground staff and baggage-handling teams, for example.

If data discovery is about shifting business intelligence from a descriptive to a diagnostic process, as some analysts say, the next step is to make this predictive, so that users can anticipate changes in business conditions in advance and make the necessary preparations.

This is the path that fleet-leasing and management company ARI Fleet UK has taken, using tools from SAP.

The products are used by ARI to gather data from the units on vehicles that it leases to clients such as logistics company FedEx and builders' merchant Travis Perkins, along with information about fuel card usage, accidents and maintenance work. The information is then presented to clients in the form of individual, self-service dashboards (multiple screens containing information and data).

This approach keeps clients informed about issues such as the hours drivers spend at the wheel and incidents of harsh braking.

In future, predictive analytics will enable businesses to anticipate the effects on fleet management costs of vehicle downtime, adverse weather or changes to delivery routes caused by roadworks. "Predictive analytics will enable us to help clients run their fleets even more efficiently, by keeping them one step ahead of potential problems," says Keith Allen, ARI's managing director. "The cost of downtime with medium or heavy-duty trucks can be considerable," he says.

"So there is tremendous power in being able to tell a client that, for instance, there is an 85 per cent chance that a particular part is going to fail in the next 2,000 miles, based on data gathered from other trucks of the same make and model, running similar routes in similar conditions."



Big data put under the spotlight

Continued from Page 1

and warehousing – the use of powerful software to interrogate stored information – towards big data. "The origins of data warehousing lay in data sets which, at that time, were immediately relevant to business problems," says Duncan Ross, director of data science at analytics provider Teradata.

"Specifically, this comprised data that could be put into tables of rows and columns and linked in a relational form." By its nature, this limited the types of data being stored mostly to highly structured forms.

While they are still a part of big data analytics, much of the information being tapped is unstructured. This may include data from social media, about weather, geography, mobility, from sensors and many other data sets that can enhance understanding.

Using Facebook data, Japanese online and catalogue retailer Nissen was able to glean detailed insights into customer likes, dislikes and buying motivations. Teradata's Mr Ross says: "By linking this external data with its established internal data, [companies] are effectively broadening their window on the wider world."

"Each time more data are added, this window grows larger, affording the business a clearer view of the market."

"This allows them to test ideas and make better decisions and predictions. Crucially, it can also enable them to break away from small, incremental improvements towards innovations that will transform their business."

For companies and other organisations at the cutting edge of big data analytics, the main goal is to be able to use the intelligence gleaned from analysing large volumes of information to predict and anticipate future trends.

Leading US banks such as

Wells Fargo and Bank of America, consumer goods companies such as Coca-Cola and 3M, and retailers including Walmart are all using big data analytics to improve the running of their business models and to anticipate changes in demand before they actually occur.

Scott Schlesinger, senior vice-president and head of business information management for the technology consultancy Cappgemini in North America, says: "Predictive analytics can turn poor business decisions, made using haphazard guesswork, into well thought out and successful business decisions that improve performance."

He also warns that to use predictive analytics tools well, an organisation must first know what information it needs, and devise "a proper information and business process strategy that drives and [delivers] efficiencies across the organisation".

Eddie Short, head of data and analytics at management consultancy KPMG, sounds a similar cautionary note. "Three years ago, some commentators suggested that data would become the new currency of business, almost on a par with capital and labour," he says.

"Since then, information has clearly moved to the core of most organisations' operations, but questions remain about how to extract real value because the journey from traditional business analytics to [data becoming a] business enabler requires organisations to fundamentally rethink how they collect, analyse, distribute and monitor data," Mr Short adds.

"In my view, three years from now it will be the businesses that have answered these questions by combining their hunger for data with an appetite to match it with the needs of their businesses that will win the day and become masters of their own data."

#1 Business Analytics

- ✓ Leader in Business Intelligence
- ✓ Leader in Analytic Applications
- ✓ Leader in Data Warehousing

ORACLE®

oracle.com/bi
or call 1.800.ORACLE.1 (U.S.) or 08705 332200 (U.K.)

Copyright © 2013, Oracle and/or its affiliates. All rights reserved. Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

On FT.com »

Transforming industry
Mobile technology is changing the face of healthcare
ft.com/mobilehealth



In the ether...
The Connected Business talks to John Considine, Terremark's head of technology
ft.com/cloudbusiness



SMART CITIES CHANGE THE WORLD

Barcelona
19-21 November 2013
www.smartcityexpo.com

3 DAYS CONGRESS & TRADE FAIR UNLIMITED 25% DISCOUNT CODE **JNTZJ36X**

SMART SPEAKERS

| | | |
|--|--|---|
| Richard Florida PROFESSOR, UNIVERSITY OF TORONTO AND NYU SENIOR EDITOR, THE ATLANTIC, USA | Amitabh Kant CEO & MANAGING DIRECTOR, DELHI MUMBAI INDUSTRIAL CORRIDOR DEVELOPMENT CORPORATION, NEW DELHI, INDIA | Alistair Buchanan FORMER CEO, OFFICE OF GAS AND ELECTRICITY MARKETS Ofgem, UK |
| Francisco Pontes de Miranda Ferreira EXECUTIVE DIRECTOR, INSTITUTO AMBIENTAL, BRAZIL | Anette Holm CHIEF INNOVATION OFFICER, STOCKHOLM, SWEDEN | |

PLACE YOUR BUSINESS AMONG THE PEOPLE AND COMPANIES THAT WILL LEAD THE FUTURE

Global Event Partners 2012

abertif telecom
accenture High performance Deloitte
AQUALOGY
CISCO
EDS
FCC Service Customers
ferrovial SERVICES
IBM

indra
PHILIPS
RosRoca
Schneider Electric
Telefonica
THALES
urbaser
Wondeluz

SMART DRIVERS

Energy | Technology & Innovation | Smart Society & Collaborative City | Sustainable Built Environment Governance & Economy | Mobility | City Resilience & Security

Premium Media Partner

The Connected Business

Treasure can be found hidden in everyday details

Guide Jane Bird helps to define terms in the new era of business intelligence and analysis

As with the industrial revolutions of the past, the huge technological changes taking place around us can seem threatening and confusing, especially when they come couched in language that is seemingly incomprehensible to many people. Here is a short guide to what "big data" and business analytics mean for businesses.

Definitions

Big data is a term used to describe information of an order of magnitude far greater than has been encountered before. Typically, the data come from social media such as Facebook or Twitter, or vast numbers of connected devices, including satellites, closed-circuit television cameras, audio and video recording equipment, payment terminals, mobile phones and sensors.

There are an estimated 5bn connected devices in the world, a total that is expected to rise to 20bn by 2020, all of them gathering and creating data.

Analytics exploits the storage capacity and power of technology to process information at high speed,

and deploys mathematical algorithms to spot valuable data.

"What previously might have taken days or weeks can now be done in hours or even minutes," says Mark Wilkinson, managing director of SAS UK and Ireland, a business analytics software company.

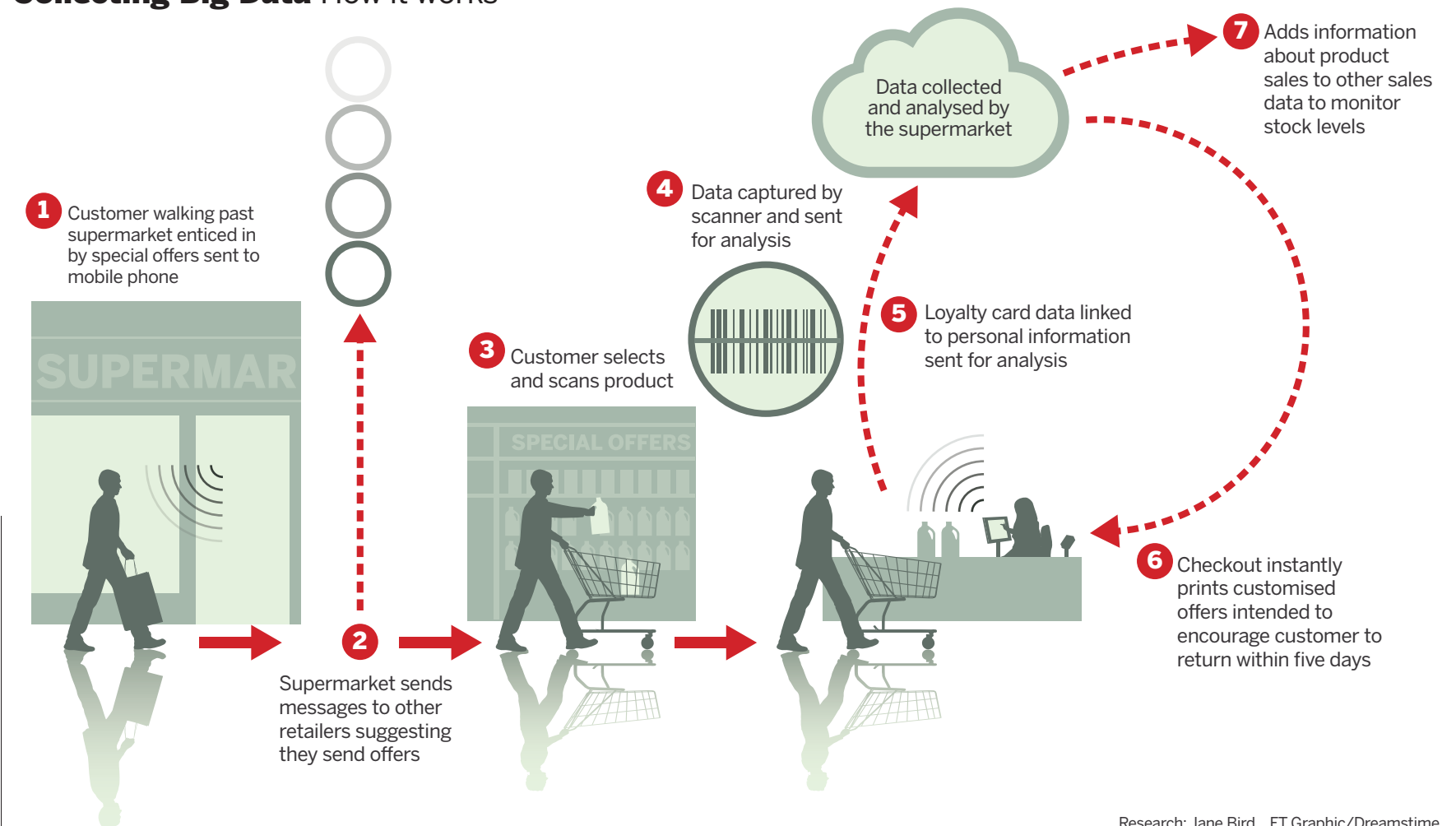
Anthony Deighton, chief technology officer at QlikTech, a US business intelligence software company, compares analytics to looking at a cell under a microscope. "Before it is under the lens, it is simply... tissue or blood cells," he says. "But with a microscope, one can make sense of the smallest relevant parts of the DNA to create miraculous insights."

"That's the way it is with big data. When you can isolate and compare parts of the data, it becomes useful."

History

The term big data was coined by Google, according to Eddie Short, head of the business intelligence practice at KPMG, the consultancy. "But in reality, it started with the first satellites and space exploration." Physicists alone are collecting more data in a few days than previous generations together accumulated

Collecting Big Data How it works



throughout history. The sheer volume of data and the way it is processed mean it is about looking for probabilities rather than certainties, says Mr Short. "We are now having to eliminate what is unlikely and improbable, as opposed to identifying exact answers."

The commercial exploitation of big data is in its infancy. According to a report by Vanson Bourne, a UK-based technology research company, and Interxion, a European provider of data centre services, only a quarter of European organisations have built a business case for big data. But more than 90 per cent of

companies that have an information technology strategy aligned with their business plan have explored it.

Benefits

Businesses can find out what customers, suppliers and competitors are saying and doing, often in real time. They can predict more accurately what is likely to happen.

This presents opportunities to customise products and services and better integrate with suppliers over development and delivery, says Mr Short. "An organisation working effectively in a big data culture becomes dynamic and innovative,

ultimately selling more, more profitably, or delivering more effective services."

The benefits are so significant they should be taken into account by economists measuring gross domestic product and by government policy makers, according to a report by the Centre for Economics and Business Research, which says recognising the value of data goes beyond company interests – it is vital in valuing national economies.

Risks

Big data and analytics do not offer certainty. Because you are dealing

with eliminating the most unlikely elements and examining probabilities and correlations, there is always a danger of missing something essential, says Mr Short.

Another risk is that data are so complex that they can only be used by data scientists. Analytical tools need to be easy to handle, with their findings clearly visible, so that non-technical users can gain insights.

If this becomes mainstream, the potential is limitless, says Mr Deighton. "You can give staff their own 'microscope' to make the next big discovery that... transforms a company, an industry or the world."

Research: Jane Bird FT Graphic/Dreamstime

Information deluge has power to change us all

Opinion

DAVE COPLIN

Santander is an elegant city on Spain's northern coast whose surrounding mountains are said to glow at sunset. But it is when the sun goes down that the true magic happens.

Street lamps automatically dim when there is a full moon or when the road is empty, bins send an alert to be emptied when they are full and drivers are directed to the nearest free parking spaces. It is all due to an experiment involving 12,000 sensors installed across the city, measuring everything from light, pressure, CO₂ levels and humidity, to the movement of people, public transport and cars.

Santander is a connected city, one that is smart.

A living picture of the city is created through connecting these separate but interconnected pools of data and analysing them can transform how Santander operates and its inhabitants live. This "smart city" is just one example of how big data are going to transform our world.

An expanding amount of data are being created as more people, devices and things become connected – we have entered the age of the "internet of everything", also called "the internet of things", a world where there are almost twice as many bytes of digital data as there are litres of water in all the world's oceans.

It is not the amount of data that is important; it is what is done with it.

Using analytics, artificial intelligence and machine learning technologies to collect, connect and crunch enormous, disparate data sets is what will underpin new waves of economic growth, innovation and human endeavour.

Big data offer three huge opportunities: they will bring new insight, helping us understand the world and ourselves in a way that we never could before; they will enable an era of innovation; and they will lead to the creation of transformative services, changing the way we do things. Fundamentally, they will change society and what it means to be human. Analysing big data sets can provide incredibly powerful results. Take an example about how it can transform the way we tackle bullying. University of Wisconsin researchers created a machine learning algorithm – a system that can learn from data – to

An algorithm found 15,000 bullying tweets a day and identified victims and their accusers

spot bullying among the 250m daily posts on Twitter.

It found 15,000 bullying-related tweets a day and was able to identify the bullies, their victims, accusers and defenders. This type of big data initiative could be used to identify children in need of help and intervention.

Another project, involving the mobile phone data of 50,000 people showed that it was possible to be able to predict the future locations of individuals with 93 per cent accuracy – a showcase of how big data bring greater understanding of human behaviour.

The pace of technological innovation is at times scary as it challenges our understanding of what it means to be human.

When automobiles were

first invented, someone was legally obliged to walk in front of cars carrying a red flag. It is ridiculous that you would want to restrict a vehicle to the walking pace of a man. We face a similar inflection point now with the revolutions possible with big data.

Take learning a foreign language. It is a cornerstone of most children's education around the world but we have to ask whether this is now redundant.

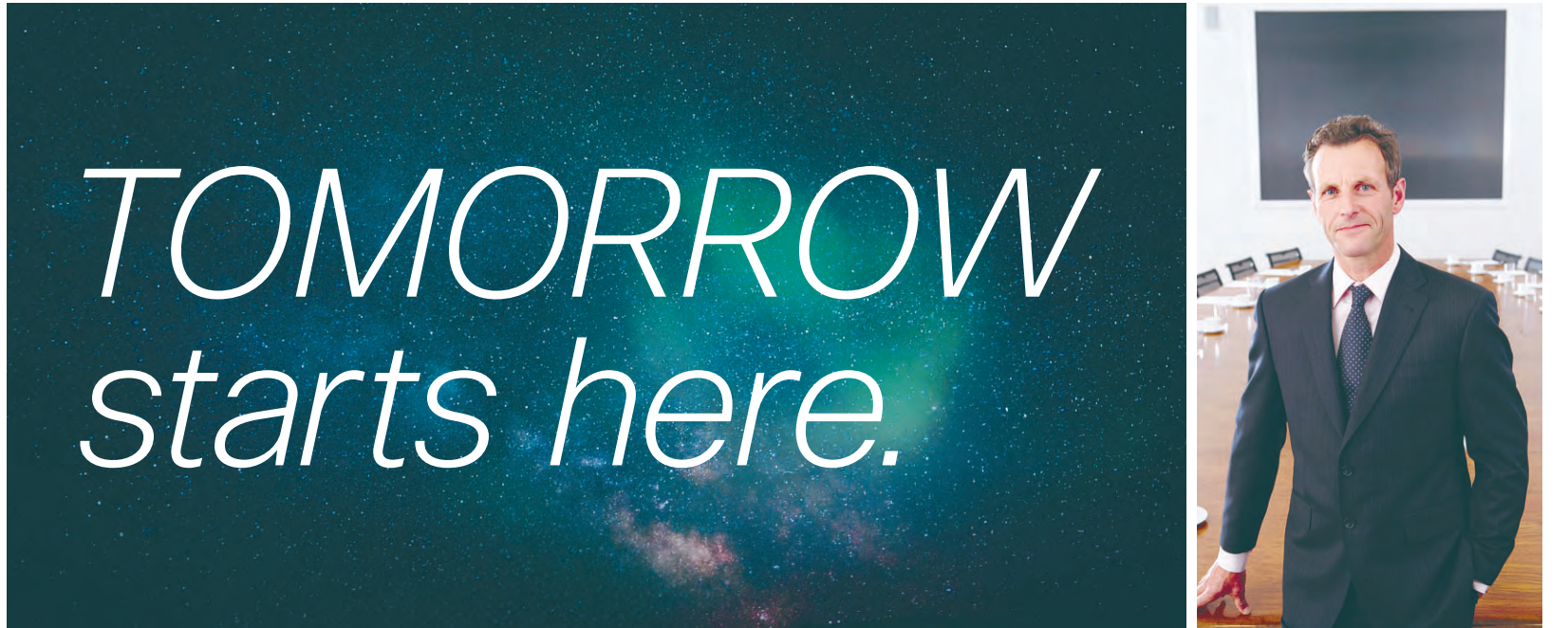
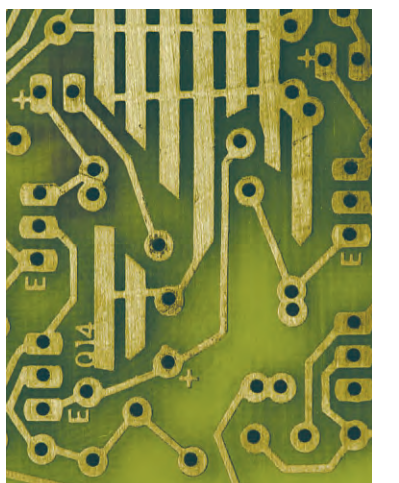
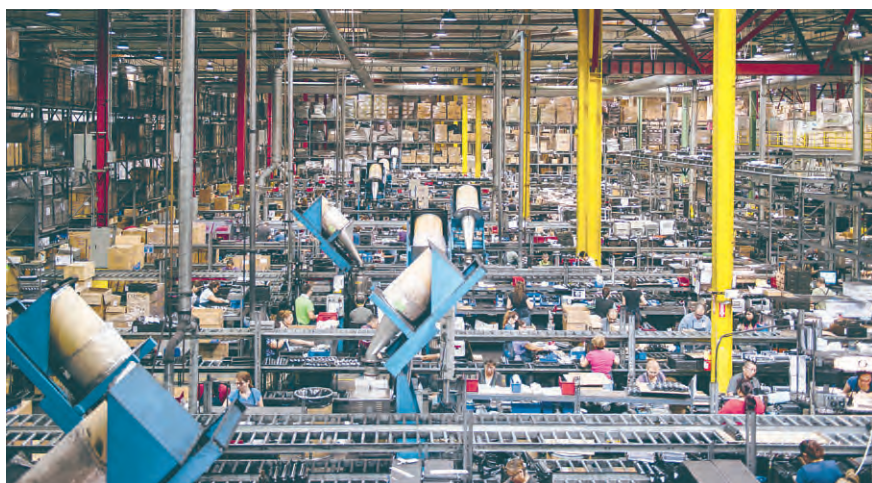
Many would balk at this suggestion. But big data, coupled with machine learning, power instant language translation services, accessible on our mobile devices, that up to now have worked pretty well with text. These will soon be able to translate live speech almost perfectly in real time.

So should we bother to teach children a foreign language when big data-powered technology could soon do it better and much more efficiently?

As a society we have to address these types of questions just as we have addressed them at similar moments in our evolution to date – notably the introduction of cheap pocket calculators and their disruptive role in maths education in the 1980s.

Big data provides the opportunity to change the way we live and the world that we live in. It can help solve some of society's greatest challenges but moral, cultural and consumer concerns need to be properly understood and addressed before the full transformative potential of big data can truly be realised. Big data will change humanity if humans allow it to.

The writer is chief envisioning officer at Microsoft UK



Contributors

Paul Taylor
Editor, the Connected Business

Bede McCarthy
Technology correspondent

Jane Bird
Journalist specialising in technology and business

Michael Dempsey
Journalist specialising in IT and defence

Jessica Twentyman
Freelance journalist

Emma Jacobs
Business Life reporter

Adam Jezard
Commissioning editor

Andy Mears
Picture editor

Steven Bird
Designer

For advertising details, contact: **James Aylott**, +44 (0) 20 7873 3392, email: james.aylott@ft.com, or your usual FT representative.

All FT Reports are available on FT.com at ft.com/reports

Follow us on Twitter at twitter.com/ftreports

Today, it's easy to marvel at how far we've come.

Our phones talk to our TVs to record our favourite shows. Doctors in Estonia diagnose patients in Denmark. Social networks help companies improve customer service.

And yet, up to now, more than 99% of our world is not connected to the Internet.

But we're working on it.

And tomorrow, we'll wake up pretty much everything else you can imagine.

Trees will talk to networks will talk to scientists about climate change.

Traffic lights will talk to cars will talk to road sensors about increasing traffic efficiency.

Ambulances will talk to patient records will talk to doctors about saving lives.

It's a phenomenon we call the Internet of Everything – an unprecedented opportunity for today's businesses.

Tomorrow?

We're going to wake the world up. And watch, with eyes wide, as it gets to work.

#tomorrowstartshere

<http://cisco.co.uk/tomorrow>



The Connected Business

Remote hosting offers more agile responses

The cloud Online access cuts fees and delivers projects more quickly, writes *Michael Dempsey*

The promise of business intelligence is that it can spot unforeseen correlations and allow companies to draw surprising insights from masses of data such as quarterly sales transactions.

But this work requires a lot of computing power, which previously meant paying in advance for dedicated processing equipment and software before the inquisition of data could begin.

However, providers hosting analytical services on remote servers in the cloud can undercut what was previously a costly exercise even for big companies.

Using the cloud means not having to buy dedicated equipment or allocate substantial space on existing hardware.

Established data analysis software – designed for the corporate domain – was not easily adapted to be accessed online, and newer entrants in this market have leapt into the cloud, with the result that their clients have lower data analysis bills.

James Mucklow, an IT expert with PA Consulting, says: “The idea of business intelligence is to have a conversation with the data. In the past, it took time to formulate each ques-

tion.” He says the surprise for many businesses accustomed to using business intelligence software is just how quickly projects can now be set up using cloud-based services.

PA uses publicly available anonymised prescription data for millions of patients of the UK’s National Health Service to demonstrate how to initiate a project.

To analyse such a mountain of data using conventional software would take months and cost £100,000 or more, including hardware purchases. However, a project to analyse the same data could be up and running in three days using cloud-based services.

In IT terms, the drugs data are no different from sales transactions in a large organisation, and Mr Mucklow says they can be interrogated quickly.

He adds that venturing into a data analysis project via the cloud is a low-risk option. “You can do this, decide it has no value for you, and switch it off,” he says.

As a result, business intelligence has entered a new era of agility; for example, one-off intelligence projects are now likely to become a much more attractive proposition to small businesses.

Both Amazon and Google are offering data analysis via the cloud.



New prescription: NHS data demonstrate the potential of the internet Daniel Lynch

‘This is a different category of software, you have to know what you’re doing’

Jaspersoft was founded in San Francisco to bring data analysis to a broader audience.

The company now operates via the Amazon Web Services Marketplace and 250 users signed up for the service in the first three months of its going live.

Jaspersoft’s software manipulates customer data, hosted on Amazon hardware.

Brian Gentile, Jaspersoft’s chief executive says: “Once your database is inside Amazon’s cloud we can connect to it and do analysis.”

He says that previous business intelligence applications were “too expensive, didn’t reach the audience they could have because of the cost”.

Jaspersoft reckons that it can scrutinise data through Amazon for just 52 cents an hour, although most companies offer a fee structure that varies with how much you use their services.

Despite its new availability, Mr Gentile thinks that it would be a mistake to confuse a business intelligence project with every other cloud-based service.

“This is still a different category of software, you have to know what you’re doing, although there is nothing magical about it,” he says.

Gung-ho approach tends to ignore dark overtones

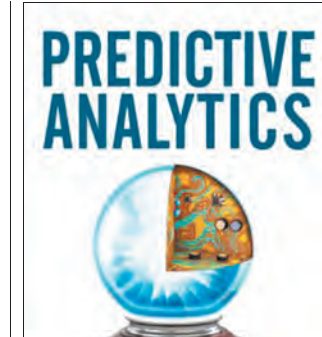
The jacket for Eric Siegel’s *Predictive Analytics: the Power to Predict Who Will Click, Buy, Lie, or Die*, contains a description of the “omnipresent science” of predictive analytics as affecting “everyone, every day. Although largely unseen, it drives millions of decisions, determining whom to call, mail, investigate, incarcerate”.

It is an ominous phrase, coming at the same time as Edward Snowden’s claims that the National Security Agency had access to information from the servers of internet companies such as Facebook, Google, Microsoft and Yahoo.

The data, the US whistleblower has said, are used to track foreign nationals suspected of terrorism or spying.

The claims have cast a shadow on the use of data by companies. The book’s author, a former Columbia University professor, is rather more gung-ho about the potency of using data, possibly unsurprising as he has also founded the Predictive Analytics World series of conferences.

The book shows such techniques have been applied by organisations to forecast, for example, your buying decisions, or the likelihood of your leaving a job, your health and date of death. The modelling methods vary but all use data, from commercial



PREDICTIVE ANALYTICS
The Power to Predict Who Will Click, Buy, Lie, or Die by Eric Siegel

Published by John Wiley & Sons
£18.99/\$28

transactions, social network postings or human resources records. These are harnessed to anticipate behaviour, in order to drive and automate decisions by retailers, employers or healthcare providers.

Prof Siegel reveals insights into consumers’ habits, such as a pharmacy chain’s findings that if you buy nappies you are likely to buy beer, or an insurer’s discovery that a low credit rating means more car accidents.

He looks at the Flight Risk program, run by the PC maker HP, which predicted which staff were most likely to leave. In a pilot group, HP was able to

reduce turnover from 20 to 15 per cent.

He also shows the limitations of predictive analytics – for example, by assuming too much. He cites the case of the Berkeley professor David Leinweber, who discovered that the annual closing price of the S&P 500 stock market index could have been predicted from 1983 to 1993 by the rate of butter production in Bangladesh.

“His analysis was designed to highlight a common misstep by exaggerating it,” writes Prof Siegel. “It’s easy to find correlations by searching through a large number of financial indicators across many countries, just by chance.”

The book is littered with lively examples, although the short chapters and subheadings lack focus.

Prof Siegel only briefly raises the privacy implications of data use, citing a rather flip reference to the comic character Spider-Man’s uncle: “With great power comes great responsibility.” More seriously, he states that: “[This] is an important, blossoming science. Foretelling your future behaviour and revealing your intentions, it’s an extremely powerful tool – and one with significant potential for misuse.”

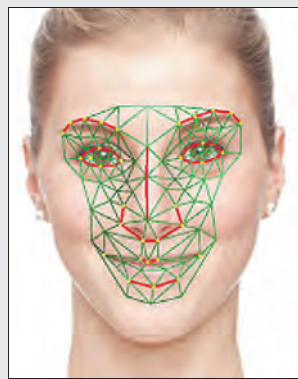
Emma Jacobs

Case study Face mapping gets to heart of consumer emotions

Lausanne-based nViso emerged from a Swiss research project into modelling human perceptions of emotion as shown by the smallest facial expression. Now it has turned to IBM’s cloud-based services to analyse its digital discoveries to predict behaviour.

By filming people in focus groups to capture each muscle movement, a statistical model is built up, with the human face mapped via hundreds of reference points. The expressions are scrutinised by nViso’s algorithms to interpret people’s feelings after being streamed from a webcam into the cloud. Their primary emotions are what marketing agencies the world over pay nViso to uncover.

Tim Llewellynn, co-founder and chief executive, says he has “built a system that detects emotions in real



Visage aware: nViso at work

time, and emotions predict behaviour”. Cloud-powered analysis means buying intentions emerge from people’s emotional engagement. Reactions to a planned marketing push can be measured and used to revise the campaign.

What IBM’s cloud service brings to the research is an ability to increase and

decrease the amount of analysis without capital spending or waste. The economics of the cloud make nViso viable. “We’d not have been able to deploy this without the cloud. Now, we can do this work on a project basis and offer to test a product’s prospects for as little as \$10,000,” says Mr Llewellynn.

Data analysis is of little use if you cannot act on what it reveals. The instant connection to IBM’s cloud allows nViso to break down barriers to understanding what it defines as our six primary emotions: happiness, surprise, fear, anger, disgust and sadness.

“It’s about much more than detecting a smile,” says Mr Llewellynn. “Humans aren’t binary; we have to perceive subtle reactions to minor changes.”

Michael Dempsey

Answers are just a call away

Mobile devices

Analysis is now available to anyone, anywhere, reports *Bede McCarthy*

Technologies such as big data have transformed business intelligence from the stuff of stodgy analyst reports to an instant stream of information that helps everybody from sales reps to chief executives.

Such data are often most useful in the field, which is why many companies are equipping employees with business intelligence applications for mobile use.

Companies have always used data in live situations – in mining and geology for example – but it was often tied to laptops and required specialist skills to interpret.

But the rise of affordable cloud solutions for analytics, coupled with the arrival of smartphones and tablets, made it possible to use mobile intelligence without a large investment in servers or staff training.

“The barriers to entry have changed,” says Ian Cohen, group chief information officer at Jardine Lloyd Thompson, the risk, insurance and employee benefits specialist. Mr Cohen says JLT equips its consultants with mobile analytics so they can work with clients to deal with issues on the spot, rather than gathering information and taking it back for analysis. The key difference is presentation.

“It’s a visualisation of data in a way that people

can see, touch and move. The days of analysts sitting behind screens in big offices crunching data have gone,” Mr Cohen says.

The technology can benefit almost any business. Retailers can see sales figures from the shop floor. In Colchester in the UK, an NHS hospital is tracking the efficiency of its accident and emergency service.

Vendors say such tools are popular with executives, who want updates while travelling or to access data in meetings without having to request it.

So it is no surprise that mobile business intelligence is now a \$13.1bn market. According to Gartner, the

“You need to have people who are more adept at data, who know what they’re looking for”

IT research company, spending on business intelligence, information management and analytics software rose 6.8 per cent last year, and 17 per cent the previous year.

This coincides with a rise in demand for staff who can interpret business data in the field – a skill, Mr Cohen says, is in short supply.

He says: “The person you have at headquarters crunching data might not be the same one you want to put in front of a client at their office. You need to have people who are more adept at data, who know what they’re looking for

and ask the right questions.”

The sector is dominated by traditional vendors such as SAP, Oracle and IBM. But the shift to mobile has provided an opportunity for small cloud-based companies such as Salesforce in the US and Sweden’s Qlik-Tech to gain a foothold.

“The new companies have gained huge traction by virtue of their simplicity, visualisations and dashboards [multiple screens], so that other more traditional analysis-driven companies are being challenged to keep up,” says Mr Cohen.

Sean Farrington, managing director of UK and Ireland for QlikTech says: “We always demo on a mobile device, because we have seen that is an expectation of senior executives – they don’t want to access information any other way.”

Mr Farrington says Qlik-Tech has 28,000 customers because of good data visualisation and allowing users to inspect it with simple questions. “It’s that question-based method rather than delivering information in a standard formatted report. When you’re a busy chief executive, you don’t want to spend the time or haven’t the patience to learn a tool.”

Carrying sensitive data on mobile devices can leave companies vulnerable if devices are stolen or lost.

However, Mr Farrington says the web-based nature of products means such data need not necessarily be stored on phones or tablets. “That’s why we deliver via a browser, so if you lose your mobile device there are no data on it.”

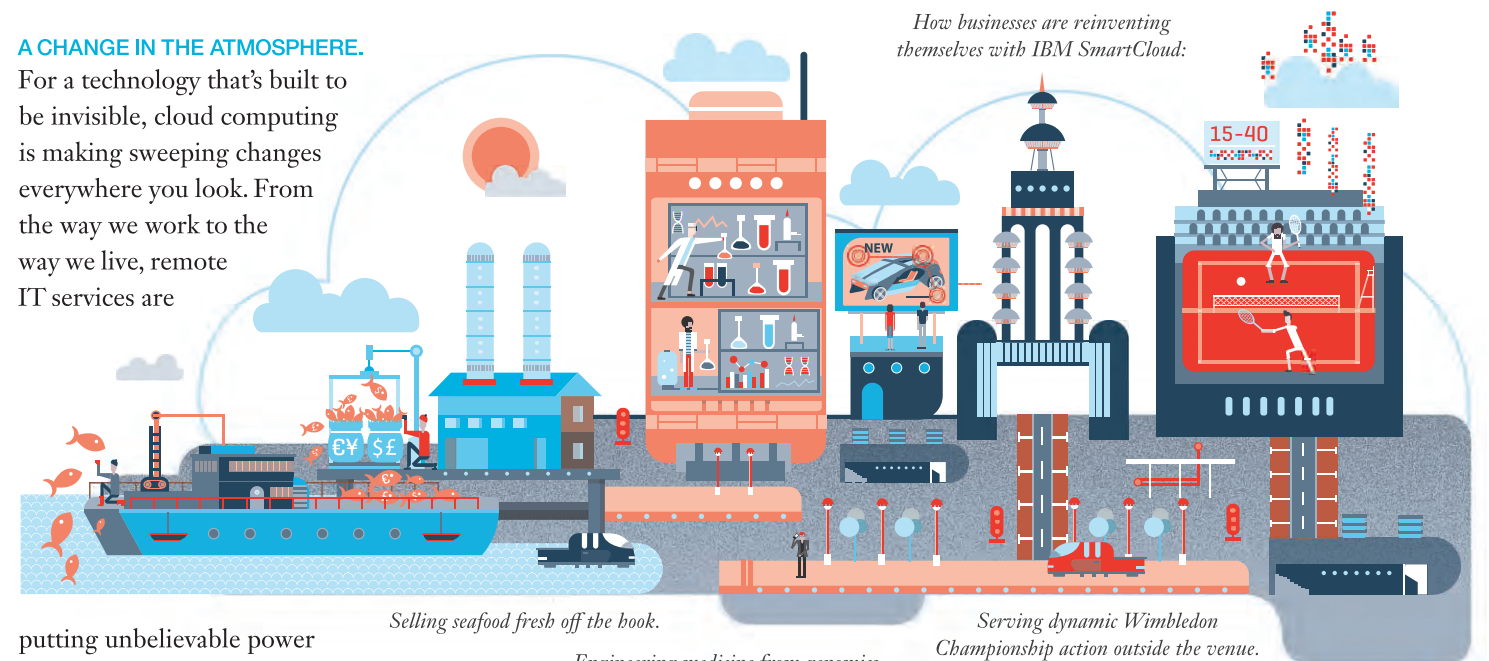
SMARTER TECHNOLOGY FOR A SMARTER PLANET

FROM MAINSTREAM



A CHANGE IN THE ATMOSPHERE.

For a technology that’s built to be invisible, cloud computing is making sweeping changes everywhere you look. From the way we work to the way we live, remote IT services are



Selling seafood fresh off the boat.

Engineering medicine from genomics.

Serving dynamic Wimbledon Championship action outside the venue.

putting unbelievable power right at our fingertips. But while more and more companies are discovering the extraordinary efficiency gains of the cloud, few are aware of how much potential is left untapped.

TO REVENUE STREAM.

So conversations that were once held only in IT departments are now happening across the C-suite. And rapidly deployable resources like IBM SmartCloud give decision makers plenty to brainstorm about.

YESTERDAY THE BACK ROOM, TOMORROW THE BOARDROOM.

At most companies, the cloud is taken at face value—a conduit for increasing flexibility and reducing complexity. Meanwhile, forward-looking businesses are rethinking the cloud to enable them to profit from an explosion of new social, mobile and analytics capabilities. They’re transforming business models, disrupting industries and getting to market in no time.

68%

In a recent study, 68% of firms using the cloud to disrupt markets expected to outperform their peers.¹

“Removing the burden of infrastructure really allows you to focus on improving your strategy and mission.”

Marc Hoit, CIO, NC State

CLOUDS BUILT FOR RAINMAKING.

One such example is 3M. These early movers are using the cloud to analyse image design based on eye movement. Graphic artists everywhere can now upload their files and get instant feedback on what will most likely grab viewers’ attention. It’s a radically different proposition with untold, new market potential.



3M Visual Attention Service is a cloud-based tool for analysing designs like this ad.

RETHINK IT. REINVENT BUSINESS.

In the trends of an expanding digital world, we see a perfect storm of innovation forming. And for today’s industrious businesses, the cloud is ready to be capitalised on.

ibm.com/cloudtechnology/uk

LET’S BUILD A SMARTER PLANET.



¹Based on a 2011 joint IBV/EIU Cloud-enabled Business Model Survey of 572 business and IT leaders. IBM, the IBM logo, ibm.com, Smarter Planet and the planet icon are trademarks of International Business Machines Corp. registered in many jurisdictions worldwide. A current list of IBM trademarks is available on the Web at www.ibm.com/legal/copytrade.shtml. ©2013 IBM Corporation. All rights reserved.