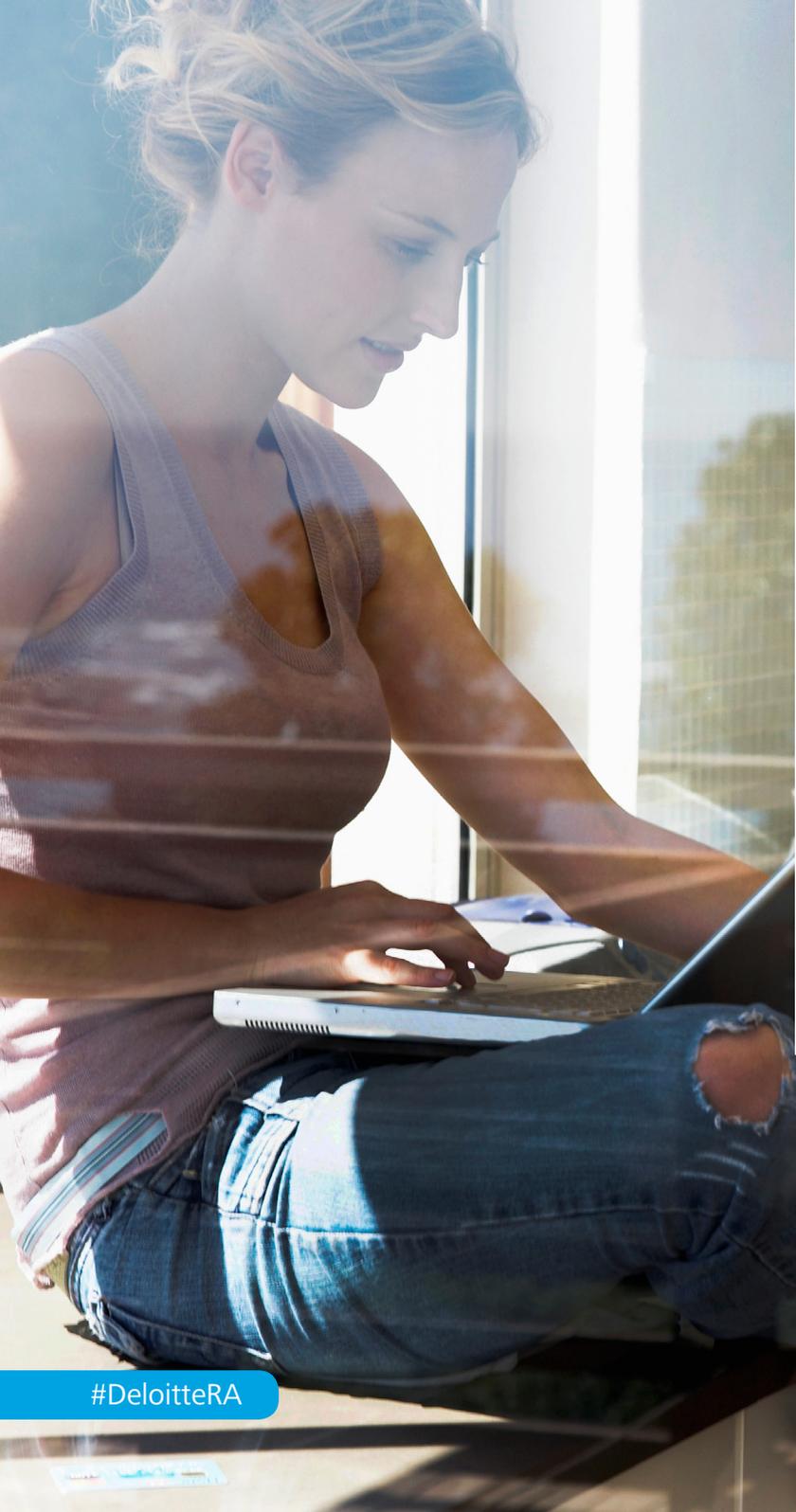




**Deloitte.**

Analytics Trends 2016 | The Next Evolution



As we enter our third year of identifying the analytics trends that are likely to influence the trajectory of the business world in coming years, it is clear that some trends are not going away. Instead, they are evolving at a rapid pace. In the world of science, such rapid evolution demands closer analysis – and the same is true with these analytics trends. They deserve a fresh look.

Meanwhile, others have a short half-life. They enter the conversation quickly and converge just as fast, and soon they are assimilated. By that time, they are not trends – they are reality. Take the topic of big data, for example. A few years ago, it was treated as an up-and-coming trend. Now it is just the air we breathe in analytics, influencing business strategy and commanding substantial investment every day. Perhaps that's why Google Trends search analysis shows that the term, which had strong growth beginning in late 2010, is experiencing decline.

This year, we are taking stock of a mix of both new and familiar topics that are shaping an “everywhere analytics” world – where analytics, science, data, and reasoning are embedded into the decision-making process, every day, everywhere in the organisation.

**Six significant trends are in play.**

# The man-machine dichotomy blurs

## Are machines coming for us?

The newsstand rhetoric posits that smart machines will soon take over our jobs. Fear not – there’s still a place for us. Humans have always added value to machines as processes become automated, and this is likely to continue.

Still, the cognitive age is clearly upon us, as indicated by more than \$1 billion in venture capital funding for cognitive technologies in 2014 and 2015. Analysts project that overall market revenue for cognitive solutions will exceed \$60 billion by 2025.<sup>1</sup> As cognitive technology evolves, it is likely to become just another tool in the toolbox – very useful for the right application but not replacing traditional analytics capabilities that also complement the human thought process. The man-machine dichotomy is not “either/or.” It is unequivocally “both/and.”

<sup>1</sup> Source: International Data Corporation

## Complementing one another

There are likely to be a variety of ways in which smart people and smart machines will work alongside each other. Some humans will have to build and implement cognitive technologies, of course. Others will ensure that those technologies fit into a work process and monitor their performance. And some humans will complement computers in roles where machines can’t perform well, such as those involving high levels of creativity, caring or empathy.

## Paving the way to a collaborative future

Of course, these combinations of technology and people won’t happen seamlessly or automatically. Organisations will need to examine knowledge-intensive processes and determine which tasks can best be performed by machines and which by humans. Some degree of retraining may be necessary. And let’s face it, there may be some job loss as well. Smart companies will think about these issues early in the game and help employees prepare for a collaborative future with smart machines.

## Impact



Impact on society  
**High**



Impact on business  
**High**



Expected peak  
**5 years**



Industries most impacted  
**Health Care, Online,  
Professional Services, and Retail**



Business domains that will lead the charge  
**HR, IT, and Marketing**

# Analytics expands across the enterprise

## So soon?

As little as a year ago, you would be hard-pressed to find an organisation that was making enterprise-level analytics investments. Instead, most were just working to implement or improve targeted analytics capabilities in a few key areas – which seemed to be enough of a challenge.

## How quickly things change

Today, building on analytics successes in discrete disciplines, leaders are beginning to take serious steps toward connecting these successes to create something bigger – something we call the insight-driven organisation (IDO). The IDO goes beyond the selective use of insights to fuel decision-making in individual parts of the business. It deploys a tightly knitted combination of strategy, people, processes, and data – in addition to technology – to deliver insights at the point of action every day, everywhere in the organisation.

## Laying the groundwork

What does this look like in practice? Some leaders are beginning to talk about “analytics transformation” or “industrialised analytics”. Short of that, many are already making decisions predicated on an IDO future – weighing the decision to build more data warehouses versus building on a big data infrastructure, for example. In both scenarios, what has changed is the scope of expectations. Notching small analytics victories in targeted parts of the business may not be enough for much longer. For leaders with their eyes on the prize, it’s all about connecting analytics capabilities across the enterprise.

## Impact



Impact on society  
**Medium**



Impact on business  
**High**



Expected peak  
**3 years**



Industries most impacted

**Financial Services, Retail, and Telecommunications**



Business domains that will lead the charge  
**IT, Marketing, and Production**

# Cybersecurity: A good defense isn't enough

## The plot thickens

Last year's supertrend, still front and centre, continues to grow in importance as more and more organisations experience the losses in value and reputation that can result from a security gap. And we're not just talking about protecting data. Product design and other IP are also vulnerable to theft and sabotage. The problem is likely to grow as cybercriminals become more skilled in infiltrating technology architectures and systems that weren't designed from the ground up through a security lens. Ironically, concerns about cybersecurity could – and perhaps in some cases should – slow the adoption of other trends that drive innovation.

Organisations with a sophisticated approach to cybersecurity are no longer satisfied with locking the doors after the robbery has been committed. International Data Corporation (IDC) estimates that US federal government agencies alone have spent more than \$14.5 billion on IT security in 2015. And the worldwide financial services industry will spend \$27.4 billion on information security and fraud prevention.<sup>2</sup>

## Going on the offensive

Organisations such as these are beginning to employ more predictive approaches to threat intelligence and monitoring – in short, going on the offensive. This may mean automated scanning of Internet "chatter" by far-flung groups and individuals who may intend cyberharm. It may involve analysing past hacks and breaches to create predictive models of which threats are likely to surface next. In many firms, it also means systematic and continuous probing of the organisation's own defenses to make sure that others don't find a security hole first.

## A moving target creates new demands

Companies adopting these types of offensive steps will no doubt find that they need new capabilities. Many cyber professionals don't have the skills to do predictive threat intelligence or predictive analysis of past breaches. At the very least, extensive collaboration between analytics and cyber professionals may be required. And cybersecurity projects will need to rapidly move up the priority list for analytics groups.

<sup>2</sup> Source: International Data Corporation, "Big Data and Predictive Analytics: On the Cybersecurity Front Line," February 2015.

## Impact



Impact on society  
**High**



Impact on business  
**High**



Expected peak  
**3 years**



Industries most impacted

**Federal and State Government,  
Financial Services, and Retail**



Business domains that will lead the charge  
**IT and Security**

# The Internet of Things – and people, too

## A new source of innovation

Innovation has always been a key force in transforming business and society. Increasingly, innovation is occurring as the result of aggregating and analysing data to create new products and services. The Internet of Things (IoT) is rapidly evolving from the realm of interesting gadgets to include tracking people as “things” to form new business models – think Uber – and influence people’s behaviors.

## Real investment

This innovation is taking place in both consumer-focused and business-to-business (B2B) industries. International Data Corporation (IDC) estimates that the worldwide IoT market will grow from \$655.8 billion in 2014 to \$1.7 trillion in 2020. Devices, connectivity, and IT services will likely make up two-thirds of the IoT market in 2020, with devices (modules/sensors) alone representing more than 30 percent of the total.<sup>3</sup>

## Building on existing infrastructure

Many businesses are finding that much of the infrastructure they need for IoT applications is already in place. Auto insurance firms, for example, are now using customer smartphone data to power “pay-as-you-drive” applications.

Some health insurance firms are monitoring – and giving discounts for – customer fitness activities as revealed by wearable tracking devices. In B2B industries like shipping, long-distance trucks and locomotives equipped with GPS and other sensor devices enable companies to offer services to optimise routes, analyse driving, and make recommendations on the cheapest places to fuel up.

IoT-based innovations are also likely to benefit the broader society. Transportation will likely become more energy- and time-efficient. Partnerships between cities and businesses could lead to more transparent and economical government services. Garbage trucks, for example, could be equipped with devices that recognise potholes in streets and alert cities about them. Parking apps could reduce the time and energy that drivers waste while looking for open spaces.

It’s difficult to think of an industry that can’t be transformed or improved by the IoT. While considerable effort remains to develop IoT standards and link up sensor-based data, there are already many possible applications that can provide value today – including helping people improve fitness, enhance efficiency, and save money.

<sup>3</sup> Sources: International Data Corporation, “IDC’s Worldwide Internet of Things Taxonomy, 2015,” “Worldwide Internet of Things Forecast, 2015-2020,” “Worldwide IoT Spending Guide by Vertical”

## Impact



Impact on society  
**High**



Impact on business  
**High**



Expected peak  
**5 years**



Industries most impacted

**Consumer Products, Insurance, Oil and Gas, and State and Local Government**



Business domains that will lead the charge

**Customer Service, IT, and Product Development**

# Companies bridge the talent gap

## A deepening shortage

By now it's obvious that universities and colleges can't crank out data scientists fast enough to keep up with business demands. And they certainly can't produce experienced analysts from a two- or four-year programme. Forty percent of respondents to a 2015 MIT Sloan Management Review survey say they have difficulty hiring analytical talent. Only 17 percent of "analytically challenged" firms say they have the talent they need. Among companies reported to be "analytics innovators," 74 percent said they had the analytics talent needed.

## Getting creative

International Data Corporation (IDC) predicts a need for 181 000 people with deep analytical skills in the US by 2018 and a requirement for five times that number of positions with data management and interpretation capabilities.<sup>4</sup> To complicate matters, there is no clear set of capabilities that define a "data scientist," because different problems require different skill sets. Some organisations are taking a multipronged approach by supplementing campus recruiting with alternatives – from turning to managed analytics to cultivating in-house talent.

With a rising number of analytics and data science programs at universities – more than one hundred in the

US alone – recruitment efforts in analytics are red hot today. Organisations recruiting at these campuses will likely find more success if they work closely with the programmes on internships and student projects. Once recruited, these graduates are more likely to stay and do productive work if they have meaningful career paths and have the ability to work with others with similar skills and backgrounds.

## Tapping the talent ecosystem

Of course, analytics talent doesn't have to be directly employed by the organisation. Some companies are consciously developing ecosystems of external providers. One, for example, has selected multiple services partners in the areas of business intelligence, predictive analytics, data science, and cognitive technology. The company continually monitors the efforts of these partners to recruit and develop qualified people and to keep up with new technologies and methods.

These are by no means extreme steps. Smart companies are realising that analytical talent is critical to their success and in short supply. They know they must get serious about preparing or partnering with this strategic workforce if they hope to successfully execute their strategies.

<sup>4</sup> Source: International Data Corporation

## Impact



Impact on society  
Medium



Impact on business  
High



Expected peak  
1 year



Industries most impacted  
Consumer Products, Federal and State  
Government, and Health Care



Business domains that will lead the charge  
HR and IT

# Business borrows from the sciences

## Scientists were into analytics before it was cool

Any conversation about the new world of business analytics should come with a caveat: It's not really new. Businesses have been engaging in analytics for years – decades, even. It may be more accurate to say that analytics is experiencing a major renaissance, ushered in by big advances and investments in technological and data capabilities. As a result, business analytics has reached a next level of maturity. Business isn't the only field notable for major advances in analytics through the years. If anything, there may be a stronger case for the sciences leading the vanguard of analytics. Universities, research labs, and other science-focused organisations have been applying and refining analytics approaches to solve some incredibly complex problems through the years, in everything from molecular biology and astrophysics to the social sciences and beyond. In many cases, they don't even use the word "analytics." For them, it's all science.

## Cross-pollination between science and business

This environment – marked by a reinvigorated interest in business analytics combined with separate-but-related advances in analytics in the sciences – is one that is ripe for cross-pollination. Already we are beginning to see techniques borrowed from the world of science and applied to business challenges. In one example, an organisation

leveraged tools used by DNA researchers as the keys to unlocking insights buried in tens of thousands of emails. These developments are in their nascent stages now, but there are plenty of signs of a coming explosion in shared analytics tools, techniques, and processes between the sciences and the business world.

## It's already happening

Looking for evidence? Some signs of the inevitable merging of science and business capabilities have already been widely observed. In one high-profile example, a prominent private company lured dozens of scientists from a major research university – a coup for the company and a tough loss for the university. Look for more ripple effects, good and bad, as the worlds of business and science continue intermingling. From major airlines and insurers to oil and gas and beyond, the business community is actively hunting for science-based approaches that can give them the edge.

## Impact



Impact on society  
High



Impact on business  
High



Expected peak  
5 years



Industries most impacted

Consumer, Financial Services, Health Care,  
Retail, Telecommunications, and Travel



Business domains that will lead the charge  
Customer Service, Finance, Marketing,  
and Supply Chain

# Contacts



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**Navin Sing**

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Managing Director: Risk Advisory Africa  
Mobile: +27 83 304 4225  
Email: [navising@deloitte.co.za](mailto:navising@deloitte.co.za)



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**Wesley Govender**

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Director: RA Data Analytics  
Mobile: +27 83 611 2929  
Email: [wgovender@deloitte.co.za](mailto:wgovender@deloitte.co.za)



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**Werner Swanepoel**

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Risk Advisory Africa Leader: Data Analytics  
Mobile: +27 82 442 5948  
Email: [wswanepoel@deloitte.co.za](mailto:wswanepoel@deloitte.co.za)



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**Graham Dawes**

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Chief Operating Officer: Risk Advisory East,  
West & Central Africa  
Mobile: +254 71 989 2209  
Email: [grdawes@deloitte.co.ke](mailto:grdawes@deloitte.co.ke)

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## Everywhere Analytics