BIG DATA
AND
CONSUMER
PRODUCTS
COMPANIES

People, processes
and culture barriers

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About the research

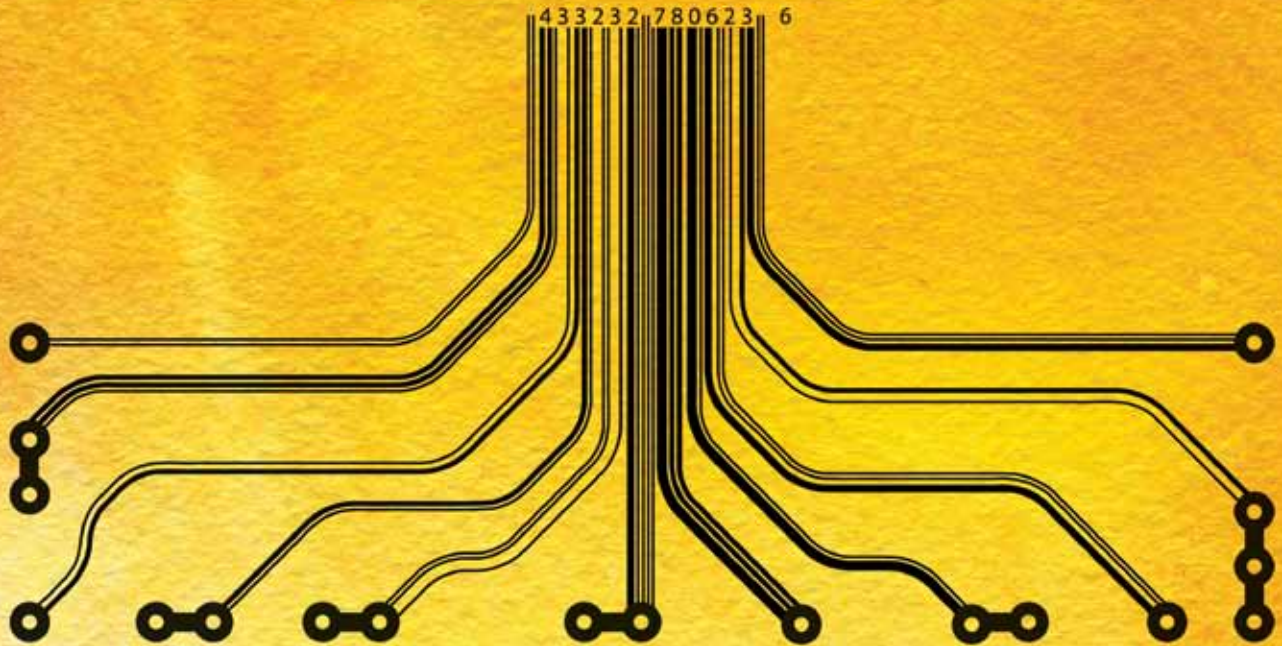*Big data and consumer products companies: People, processes and culture barriers* is an Economist Intelligence Unit report, sponsored by SAP. It explores a range of issues associated with successfully implementing so-called "big data" initiatives within the global consumer products sector. In particular, it focuses on people and skills challenges; process and organisational structure considerations; and cultural changes as a result of such initiatives. The views expressed here are those of the Economist Intelligence Unit and do not necessarily reflect those of the sponsor.

For the sake of convenience, the report takes a broad definition of "big data". In essence, it uses the term in reference to consumer products companies grappling with data sets which are large in volume as well as high-velocity, given the speed of data coming in or out, and which encompass many different data types and varieties.

In researching this report, the Economist Intelligence Unit also conducted wide-ranging desk research and in-depth interviews with a range of experts and executives. Our thanks are due to the following for their time and insights (listed alphabetically, by organisation):

- Rasmus Wegener, partner, Bain & Co

- Mindy Simon, vice president, information technology, ConAgra Foods

- Sunil Duggal, chief executive officer, Dabur

- Milind Sarwate, group chief financial officer, Marico

- Simon Hunt, head of analytics and engagement for xpress Internet services, Nokia

- Don Zereski, vice president for local search and big data analytics, Nokia

- Patrick Hoo, chief information officer, Nongfu Spring

James Watson is the author of the report and Trevor McFarlane is the editor.

Executive summary

The likes of Google, Amazon and Facebook tend to capture the majority of the headlines relating to running data-based businesses. Yet a quiet revolution is under way within the global consumer products industry. Unilever alone claims that 2bn people use one of its products every single day, while Proctor & Gamble (P&G) handles over 4bn daily transactions. Indeed, although much of the technology industry is often prone to hyperbole, the consumer products sector truly has the capability to generate "big" data—spanning point-of-sale information, customer sentiment, weather forecasts, supply-chain tracking and far more.

But working out how best to fully exploit all these data for competitive advantage is another challenge altogether. Many focus on the technology issues alone, which is certainly one key consideration, but is not the biggest difficulty in big data. Instead, there are several other major challenges, often overlooked, which this report seeks to highlight. Some of its findings include the following.

● **People, processes and culture, rather than technology, are the biggest challenges to overcome in fully implementing big data within consumer products companies.** While the headline technology figures and challenges are often startling—as early as 1998 P&G had already captured over 920,000 gigabytes of data,

for example, which is no mean IT challenge[1]— many experts and executives agree that the technology issues are not the biggest barrier. Instead, the real difficulties lie elsewhere: finding the right people and skills to make use of such information; adjusting organisational processes to take advantage of the insights generated; and switching the management culture to one that is far more data-centric in the way it operates and makes decisions.

● **A severe skills shortage is the most obvious barrier to growth, with consumer products firms competing for scarce talent across deep-pocketed rivals.** Probably the single most pressing issue for consumer products firms seeking to tap big data is a shortage of talent. Until the job title was coined in 2008, the role of "data scientist" simply didn't exist; today, just one online jobs site in the United States lists over 8,000 such roles, while another in the UK lists well over 1,000. The *Harvard Business Review* recently dubbed it the "sexiest job of the 21st century".[2] But with demand far outstripping supply, these roles will not all be filled. And for the consumer products sector, the challenge of hiring is exacerbated by the fact that they are competing for this rare talent against the likes of hi-tech firms, banks and biotech companies, all of which are willing to pay generously to secure the people they need.

[1] "How operations research drives success at P&G", CBS Moneywatch, February 13th 2008.
[2] "Data scientist: the sexiest job of the 21st Century", *Harvard Business Review*, October 2012.

● **As consumer products firms seek to uncover new insights from big data, they will need to give thought to the organisational structures and processes needed to properly take action on these.** To make the most of what a data-centric business can offer, consumer products firms will need to change how they act on the insights generated. While existing analytics queries are often more vertically focused (for example, how are customers reacting to this specific product), big data can often garner more horizontal insights across the business (which products are likely to do better or worse this year, perhaps). This raises questions about where a specialist data team is best placed within the organisation—to whom should they report, and what degree of autonomy should they have to suggest radical new approaches, among other considerations.

● **The era of big data will raise new questions about where this core competency is placed within the business.** Just as many companies debate the merits of centralised versus decentralised in functions such as finance, marketing and IT, so too is this a consideration within big data. Data initiatives are often launched within specific product lines or to support a particular customer initiative, but many believe that this will increasingly become a more centralised function, reporting to a key C-suite role such as the CFO or even the CEO. And even if this does not transpire, others see a chance for the era of big data to make IT a more strategic partner for the rest of the business. Regardless of how this debate plays out, IT has a clear role to play in making big data-related queries simpler, more visual and more interactive for managers and analysts.

● **As instinct gives way to evidence, management cultures within consumer products firms will need to adapt.** Several management adjustments lie ahead for consumer products firms adopting big data. Given the expanding variety of data now being gathered—from point-of-sale data and consumers' social media posts through to customer location information—leaders are having to get far more creative in the kinds of questions they ask. In parallel with this, executives are finding that decision-making is happening much faster, and often within a more collaborative, cross-functional environment. Others are reconsidering how accurate data need to be before they become useful and actionable. All of these shifts imply changes in the nature of the decision-making and leadership culture within the consumer products business.

Introduction

Embracing big data within consumer products

If there was ever a contender for the person best able to convert basic customer information into a thriving business, Aaron Montgomery Ward would be a worthy candidate. Back in 1872 he spotted a niche in the US market and created the first-ever mail order catalogue, which he sent out to thousands of rural households, giving people direct access to a far broader array of consumer products at more competitive prices for the first time. The catalogue shows that simple mailing lists can be the basis for a successful consumer products business. But if Mr Ward were around today, he would be overwhelmed by the volume, and variety, of data available about consumers—a much-hyped phenomenon commonly dubbed "big data".

Of course, the concept itself is hardly new. Milind Sarwate, the group CFO of Marico, a beauty and wellness consumer products company in India, says his firm has been steadily focusing on the effective use of data at all levels for much of the past decade. "We've been driving awareness of the importance of 'big data' for some time now, although the jargon has only come into vogue quite recently," he notes.

Jargon or not, big data is still a useful catch-all phrase for the breadth and depth of information available to consumer products firms today, which in turn is empowering these companies to find new ways to improve their business. This has evolved steadily over the past decade, not least on the back of other major trends, from falling computing and sensor costs through to increasingly ubiquitous smartphones and social networking.

ConAgra Foods, a major US food and beverages manufacturer, provides a useful example of the data now being collected. It gathers information in three broad categories: customers, the retail environment and internal operations. This means, first, that it monitors consumer sentiment, by looking at what consumers are Tweeting or posting on Facebook about various products. Second, it checks the daily point-of-sale and other related data that highlight sales patterns and trends, collected from a diverse array of retail stores, along with data from various specialist providers, such as local weather feeds. And third, it keeps an eye on internal data, from yield rates and product quality measures to various supply chain information. "Internally, we're starting to approach projects to see how we can link big data end-to-end, so perhaps taking point-of-sale information and referencing that all the way through our supply chains and ultimately into our forecast, so we're leveraging it to make decisions along the way," explains Mindy Simon, a vice president for IT at ConAgra Foods.

Dabur, one of India's top-four fast-moving consumer companies[FMCG], is another example. As Sunil Duggal, the company's CEO, explains, it draws on a diverse array of data to help manage its portfolio of nearly 1,200 stock-keeping units (or SKUs) sold within the country's urban and rural markets. "Today, our dashboard presents us information on all dimensions, such as population, socioeconomic strata, geography, localities and SKUs bought and sold," he says. "All this information is available to us real-time. So when an order is booked, we know what the demand pattern is according to geographies and localities, which product and SKU sells more, and which stockist needs to be replenished." Such data are also filtered back to about 1,500 of the company's 2,200 urban salespeople, via handheld devices and tablets to improve the quality of order booking. This initiative was piloted in urban India and, in the past 6 months, has been extended to cover rural markets also across 10 states. The rural market information integrates local demographics on to digitised maps to help team focus on priority markets/villages to expand coverage footprint.

Nongfu Spring, a major Chinese bottled water supplier, captures vast numbers of store photographs each day, among other things. This is related to its desire to build up stronger direct relationships with some 1.5m retailers across China, rather than being forced to rely on regional distributors who hold greater bargaining power. The company's 10,000-strong sales force visits tens of thousands of stores each day, taking at least two photos of each while also collecting inventory and order information, allowing head office to conduct a better analysis of inventory, merchandising and other performance indicators. But China's scale is a factor in all this, as the firm's chief information officer, Patrick Hoo, notes: "If you add up these data, we can easily reach one terabyte per month from photos alone." This is delivering the goods, though: the company's analytics efforts on the back of the diverse data it captures has helped it boost sales by at least 30% per year since 2008.

Big data's four key impacts

Although already powerful, big data will get bigger as technological trends continue and consumer products companies become more data-centric. Looking ahead, argues Rasmus Wegener, a big-data specialist at Bain & Co, a consulting firm, there are four broad domains where big data will have an impact within the sector, starting with the refinement and selling of existing products and improving internal processes, before moving on to the development of new products and then the creation of entirely new business models.

Nokia gives a useful example of how data are helping to refine existing products, while also helping to identify new niches. Among various data initiatives, Nokia collects vast amounts of information about how users of its low-cost handsets in emerging markets use these phones' web browser. These data are anonymously aggregated and help to inform the company how customers are making use of the device, how this varies by country or handset type and how usage changes when new features are added—not least as many of these customers are buying a handset for the very first time. "We're using these data to see what people are doing and understand how we can broaden that experience," explains Simon Hunt, head of analytics and engagement for xpress Internet services.

In short, there are wide-ranging examples of how big data is already shaking up the consumer products sector, with many more innovations looming. But getting there will not be easy: "I think the biggest challenge of big data is actually its implementation," as Dabur's Mr Duggal warns. Many reports detail the various technological challenges associated with this, but fewer consider the other issues involved—the people issues, considerations over the right processes and organisational structures required, and adapting management to a more data-driven culture overall.

1 Challenge one: People and skills

Imagine the following job advert, and then spare a thought for the HR person tasked with finding the right candidate: "Data scientist required. Must be able to work with highly diverse data sets, both structured and unstructured. Top mathematical skills needed to create appropriate models, along with excellent computer science skills to build and implement these. A deep understanding of the consumer products industry is a must. Ideally 2-5+ years experience. Should have strong ability to influence others."

Although the example is hypothetical, it broadly reflects the specific skills that many consumer products executives believe are required in order to properly fulfil their big data objectives. And as Bain & Co's Mr Wegener points out, the era of big data is not just about reskilling yesteryear's data analysts: "You're flipping upside down the role of data from responding to business problems to providing new opportunities. That requires someone who really, really knows the business, and a data scientist has all these tools to figure things out and ask questions that no other analysts would have dared ask before, as they would have known that no-one could have answered them."

As of today, such candidates are rare. "A lot of these skills such as collecting, collating, interpreting high volume data are not available

internally so we have had to outsource that," explains Mr Duggal. "[The hard bit is about getting] insight from data analysis," he says. By way of an example, the data might show that from a particular outlet, every third order for room freshener also has an order of toilet cleaner with it. "This is real-time information on something we call an adjacent product opportunity, which is then passed down to our team in the field for execution. Dynamic dashboards on hand-held devices and tablets help the team convert this information into actual sales in real time," he says. But the issue lies in finding people able to rapidly identifying such patterns, which is where the skills scarcity kicks in.

This war for talent is only just getting going. In 2011 McKinsey & Company, a consulting firm, forecast a shortage by 2018 in the US alone of 140,000-190,000 people with deep analytical skills, as well as 1.5m managers and analysts able to make effective decisions based on big data.[3] In late 2012 Gartner, a US-based technology research company, predicted that some 4.4m IT jobs alone would be created globally by 2015 to support the advent of big data, but that talent shortages would mean that just one in three of these roles would actually be filled.[4] (These forecasts apply across all sectors, as none targets the consumer products industry alone.)

[3] "Big Data: The next frontier for innovation, competition, and productivity", McKinsey Global Institute, May 2011.

[4] "Gartner says big data creates big jobs: 4.4 million IT jobs globally to support big data by 2015", Gartner Press Release, October 22nd 2012.

As Gartner notes, this will make data experts a "scarce, valuable commodity" in the medium term, until the market starts to adjust and create greater volumes of data experts. However, in the short to medium term, not only are such skills in short supply, but consumer products firms have to compete for talent against a host of rivals from the hi-tech, finance and biotech sectors, most of which are willing to pay whatever it takes to secure such skills—and are typically more aggressive in recruiting top graduates.

So, how to cope?

In response, many consumer products firms have instead sought to adopt a different approach: taking the time to train their best general managers to provide them with greater data skills, which can then be deployed to analyse the business. But there is an inherent tension in this approach: the best managers have strong prospects elsewhere in the business, so few departments are willing to let them go easily. Furthermore, given the skills needed for data tools today, retraining for this task is no mean feat. But it remains a feasible option for many. At Dabur, for example, the company created a dedicated data team about a year ago, comprised of senior sales people with a technology-oriented background. The key advantage is the specific business and industry knowledge that these teams bring to the task, although there is inevitably a challenge in grappling with the underlying tools, which remain complex.

Over time, IT will need to play a clear role in helping to ensure that such tools become as accessible as possible. Ms Simon argues that pressure from the consumer domain—quite simply, the ease with which individuals can download and use dedicated apps on their mobile devices to achieve specific tasks—will continue to pressure IT to adapt data tools

in a similar fashion. Nokia's Mr Hunt agrees: "Our management wants to play with the data, but they don't want to be writing and running queries. They want to use interactive, visual tools, so that's a new challenge, in terms of how we hook up our systems to make this possible. How do we enable them to ask the questions and explore the data on their own, without having software development knowledge."

But while this may be the goal, companies in the short and medium term will be hard-pressed to find the appropriate skills to get there. Often, the first port of call will be to look to the IT function, to explore whether existing technical specialists can be retrained. Others will look outside the business instead, to a growing number of professional agencies that provide highly specialist data expertise.

Whatever the approach taken, however, this skills gap is seen by many as the biggest short-term barrier to big data adoption, as various forecasters, such as Ovum, have predicted.[5] Still, as with any resource, concerns over skills shortages are more acute in some places than others. "We believe it would not be difficult to source such skills, or even build such skills in-house over a period of time," argues Marico's Mr Sarwate, given India's large graduate base. Similarly, time will help: as big data develops and matures, a wider pool of more experienced specialists will inevitably emerge. "Five or six years ago, I certainly wasn't looking to hire any data scientists," notes Don Zereski, vice president for local search and big data analytics at Nokia. "Today, it's already become much more commonplace, with individuals who can combine very good analytic abilities with some software development capabilities, plus business savvy."

[5] "Big data creates demand for analytics skills", Ovum, April 5th 2012.

2 Challenge two: Organisation and process

One challenge from big data is illustrated by a simple question: what if the data suggest that sales of one product line is set to collapse, while another one is set to boom? Or what if they suggest that a new business model is more likely to succeed than the old one? Assuming the forecast is shown to be robust, are organisations brave enough to overcome their internal silos and fiefdoms to realign investment between different lines accordingly? And would they do so if another function within the business uncovered this trend, as opposed to someone within their own team?

The challenge is that while the current era of data analysis typically focuses on specific vertical niches or product lines, the very nature of big data draws on a far more diverse set of information that often stretches horizontally across the business. "Looking at the data within a specific part of the business alone, such as finance, is simply a business intelligence question," notes Bain & Co's Mr Wegener. "[As part of fully exploiting big data], they should marry these data with their call centre data, and marry those to their product line data, and so on. But the challenge is that you might generate insights that affect how you direct investments within the business."

This is a major issue, agrees ConAgra Foods's Ms Simon. "I think the largest challenge is that while we like to say our industry has changed a lot over the last couple decades, it really hasn't," she argues. One difficulty is that the underlying business processes have been long established and represent a barrier to change. Ms Simon gives a hypothetical example of a team that is responsible for handing vendor-managed inventory, which follows a very specific process. This, in turn, makes it inherently difficult for the members of that team to reshape their perceptions of what is potentially possible. As she explains: "They could potentially get access to all customer inventories, which could really revolutionise how we go to market and ensure we never have out-of-stocks, or partner with customers to do joint business planning and forecasting. But that's not their role, their role is to do vendor-managed inventory."

Structuring for disruption

Business silos are another challenge. This is especially true in larger consumer products businesses, where various product lines essentially compete for investment against each other. Right at the outset, this acts as an inhibitor to truly sharing data, given that teams are inherently protective about the information

they have built up. "Being willing to accept that what's great for the company might not be the most optimal thing for my individual business unit is a big change," says Mr Wegener.

This may be easier to tackle when planned changes are aimed at refining existing products and improving the supply chain, but when it comes to the more profound changes resulting from big data, such as developing new product lines or new business models, this gets far trickier. "It's a disruptive change," says Mr Wegener. "The question is, if we come up with something really cool based on our big data solution, who owns that, who gets the benefits? Do we stand that out as a separate organisation? It's always about people and their incentives and motives. And it's hard."

This, in turn, has implications for where big data is actually handled within the business. Most often, big data is typically run out of the IT function, which is itself often embedded within a particular unit. However, as big data matures, it seems likely that more centralised data functions will emerge, with more horizontal interests within the business, rather than vertical. At Nokia, for example, the company has set up an advanced analytics team based in India, which helps to support other parts of the business with specialist reporting. The longer such teams are around, the more likely they are to become a

centralised business function, perhaps reporting directly to the CFO or even the CEO. "The more that companies realise the potential benefits of big data being a disruptive opportunity to create new products or business models, the more they tend to start centralising such functions," explains Mr Wegener.

As of today, however, few consumer products companies are that far down the line. Instead, what typically happens is that the data team is structured in line with the rest of the business. If the rest of the company is organised in a matrix structure, then the data team may follow suit, for example, although it often remains centred within IT. However, despite its IT roots, there is clear potential for a specialist data team to be created outside of IT—perhaps reporting to the CFO's or CEO's office. Alternatively, it also offers a chance for IT to gain a more strategic position within the company, if it can genuinely accomplish this. "I think IT will be elevated in what it does within the company," says Ms Simon. "Hopefully the conversation becomes much more about: 'Here is my problem, let's brainstorm around how we can get the data and analytics to answer that question'," she says. But successfully crossing that bridge raises questions about the company's culture, and how it can be adapted to a more data-centric world.

Q&A with Patrick Hoo, CIO of Nongfu Spring

Since 2007 Nongfu Spring, one of China's largest bottled water providers, has sought to reduce its reliance on the country's powerful regional distributors and instead empower a 10,000-strong sales force to market directly to some 1.5m retailers. Underpinning this shift in strategy, which has bolstered sales from Rmb2bn (about €245m) in 2007 to Rmb10bn (about €1.2bn) by end-2012, has been an ever-growing reliance on data. Chief information officer Patrick Hoo talks about the implications of building a data-centric business.

How have you sought to ensure a culture of data-led decision-making?

We're a company very reliant on data analysis. I think it's because we have experienced a period of stagnation in the early 2000s and we've been forced to change by reducing reliance on distributors. By having real-time data of all retail outlets and gaining insight based on the analysis of big data, these distributors have now mainly become logistics firms. Now everybody from top management to sales representatives relies heavily on data-based analysis.

How has this changed the type of queries made by management?

They always come up with new demands. In the beginning, management wanted to understand the macro picture. Later on they wanted to drill down to the big sales districts, to understand the performance differences. They come up new requests every few months. Different functions also have their own requests. Finance wants to analyse profits, cost and components of cost. HR wants to understand how to set up the right key performance indicators (KPIs) and the impact of these on bonuses. Marketing wants to evaluate the return on investment from advertisements.

How have you positioned this data team within Nongfu Spring?

At the head office level, we set up a data department within marketing. Then at each functional department, we have installed data specialists. These provide all kinds of data, analysis and reports. Every meeting, we don't recite from written reports, which is the standard Chinese way of management, but instead show graphs and analysis to support decision-making.

What changes have you see within management as a result of all this?

I would say the deeper we do data mining and analysis, the less we make decisions based on our gut feelings. The company is really moving towards a more scientific management model. Take the setting of KPIs, for example. We have collected data from mobile marketing in the past five years and have come up with certain logic and time-based rules, which provides a solid basis for setting powerful KPIs. Once we've set these, everybody has the same incentive. We previously encountered a period in which we changed KPIs all the time. People were really worried and sales fluctuated as a result. Now the company has entered a period of stable growth.

3 Challenge three: Culture and decision-making

Campbell's extra-chunky spaghetti sauce launched in the US market in the late 1980s. The writer Malcolm Gladwell sees this product as a useful way for starting to understand the shift in thinking that big data is now requiring of consumer products firms.[6] Up until that launch, no food company had ever considered extra-chunky as a potential product category in the spaghetti sauce market. That changed when they started seeing the data generated by Howard Moskovitz, a market research specialist. His breakthrough was not to think about how to find a perfect spaghetti *sauce*, but rather to focus on finding the perfect spaghetti *sauces*. So instead of testing existing product lines to gauge interest, he started testing every conceivable variation of spaghetti sauce—creating some 45 varieties with Campbell's R&D team—and then mining the data to find new patterns of consumer interest. By previously not considering the right questions, Campbell's product development team had been missing an entirely new category. In essence, Mr Moskovitz tried to think about what questions had simply not been asked or explored.

The example is as illustrative for consumer products today as it was revolutionary back then. As big data provides an ever-widening array of information to consider, part of the trick in exploiting this will be a shift towards new ways of thinking and new questions to ask. "The skill

that's difficult is knowing to ask for things that you never thought were possible," says ConAgra Foods' Ms Simon. "Technology has previously been an inhibitor—oh, your data set is too large, or no, we can't match point-of-sales data to our shipment data because it just doesn't reconcile. A lot of those hurdles are now gone, but when people have been told for well over a decade that they can't get anything, they stop asking," she explains. But for those companies seeking to gain an edge from the data they are collecting, their ability to get more creative in how they mine it, and the kinds of patterns they can uncover, will be crucial to their ability to reveal new product categories, or customer service initiatives, or otherwise.

By being willing to ask new questions, companies will increasingly find their assumptions challenged by what the data suggest. Nokia's low-cost line of Asha handsets is a useful example. Given that these sell for as little as US$30 in various emerging markets, it would be easy to assume that users would probably not do much online—not least as the devices might be non-touch, have small screens and often only work on slow networks. But that assumption would be wrong. "There was a fairly strongly held opinion that people who are buying those handsets were not going to be browser or app users," says Nokia's Mr Hunt. "But the data have

6 "The ketchup conundrum", Malcolm Gladwell, September 6th 2004.

clearly shown that that's not the case. It does not matter how much you paid for the handset. If you want to go to Facebook, you will go to Facebook. So that's changing the way people are thinking about these handsets," he explains.

In short, a more data-centric business will increasingly bump up against management instinct, affecting how management decisions are made. There will be other changes too, such as in the speed of decision-making. "Big data has enabled the company to make better decisions and make them fast," says Dabur's Mr Duggal, who notes that his firm used to have to wait weeks before being able to see a shift in the consumer marketplace. "We can now see the changes and challenges and act on them within 24 hours."

A further possible change will lie in the degree to which data have to be considered accurate before they become useful or actionable. Given that far greater volumes of information are being collected, it will simply not be feasible to ensure rigorous data cleanliness or quality; but this does not at all mean the data cannot be useful. "The question we're bouncing around is how accurate the data need to be in order to be actionable," explains Ms Simon. She gives an analogy of varying news sources, many of which will report on a single event, all with multiple angles and degrees of accuracy, but this still provides a sceptical reader with a reasonable understanding of what is happening. "Some people, depending on their role, have used a level of accuracy that I don't think is going to be available, or relevant," she says. "There's been a level of precision that big data isn't going to have and can't have, because of the size and timeliness of it."

New decision-making

Considered together, these varying implications add up to new ways of management thinking and

decision-making. One likely outtake from this is that consumer products will probably seek to create more cross-functional groups that can collaborate on how decisions are understood and made, rather than trying to make calls in isolation. At P&G, for example, the company's push to fully digitise its business has led to the creation of a so-called business sphere—or essentially a big data war room.[7] This takes the form of a large conference table flanked with two huge projection screens that show six different live dashboards and data visualisation views, while executives around the world can join in via video conference, viewing key data on their local computers or tablets. The company's CIO, Filippo Passerini, says that this has changed the firm's decision-making process, from a slow question-and-answer process stretched over weeks to one where groups huddle over specific data, pulling in appropriate experts as needed to resolve issues as soon as they emerge.[8]

Depending on the firm in question, such changes can be a significant shift in culture. For those who have relied more heavily on instinct, the change can be stark, whereas for others it may be less of a shift. "We have always been focused on data. Big data and analytics are only reinforcing the philosophy and increased capability of data-based decision-making," explains Marico's Mr Sarwate. "We believe that big data is not about having one single project or initiative, but about creating a way of life that encourages timely capture of relevant data, analysis of that data and effective use in business decisions and execution."

Still, as Mr Sarwate points out, the creation of new data insights will not entirely invalidate these old instincts, experience and skills: "Not everything can be data-driven and put into a formula. Had that been the case, machines would have created brands."

[7] "P&G turns analysis into action", *InformationWeek*, September 14th 2011.

[8] "Proctor & Gamble: Business Sphere and Decision Cockpits", *Business Analytics* 3.0, February 28th 2012.

Conclusion

The road ahead

As with many technology trends before it, it is all too easy to overhype the promise of big data. Even those consumer products firms that are best at adapting to it will not automatically trump others: those offering excellent goods at the best prices will always remain a competitive force. Indeed, Apple does not have an edge in consumer electronics because of its data-mining abilities; it does so by being a leader in design and service.

Nevertheless, those who can properly adapt to a data-centric world will increasingly gain competitive advantage from it. Just as the emergence of the Internet proved highly disruptive for the consumer products industry during the 1990s, so big data now promises to do the same in the decade ahead—with the potential for a new digital divide to emerge between those who adapt and those who fail to do so. But just as the opportunities are great, so too are the risks: "Because of the gravity of the insight you generate, the risks are inherently larger, but the opportunities are as well," argues Mr Wegener of Bain & Co.

"I do think big data can revolutionise our industry," says ConAgra Foods' Ms Simon. She highlights how data are enabling business model disruptions within specific market categories, such as diapers or razor blades. Selling such goods today typically focuses on the branding and merchandising of the product within a store, to grab a consumer's attention. But in using data to better identify and finely filter customer preferences and interests, some consumer products firms are starting to target customers directly, finding new routes to market, for example by delivering regular goods on a subscription basis direct to a consumer's home. "That is a totally different model for consumer products firms," she explains.

But as this report has sought to highlight, uncovering such insights—and then ensuring that such insights can be fully acted upon—will require wide-ranging changes beyond just the data centres that power the sector.