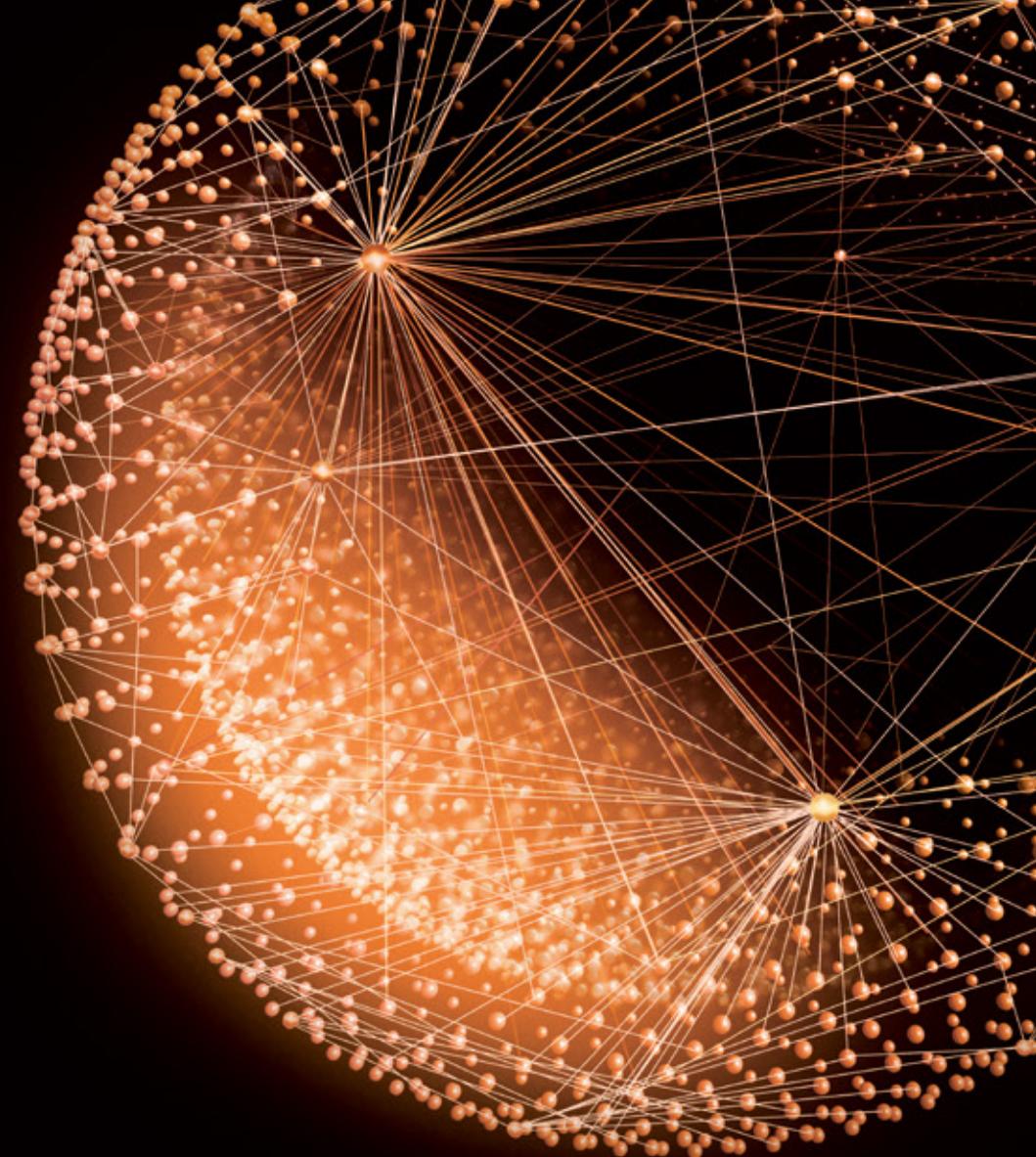


THE  
NEW  
ECONOMY  
PRESENTS



OUR  
DIGITAL PLANET

DATA-DRIVEN BUSINESS FRAMEWORKS ARE THE FUTURE.  
IN A HYPERCONNECTED WORLD, THE COLLABORATOR IS KING

For more information on SAP's work, including business networks, data solutions and the Internet of Things, visit: [www.sap.com/digital-economy](http://www.sap.com/digital-economy)

*Digitalist Magazine, Executive Quarterly* is an app that is free to download for smartphones and tablets from [Apple App Store](#) and [Google Play](#).

IN ASSOCIATION WITH



21ST-CENTURY  
COMPANIES NEED  
TO THINK OUTSIDE  
THE FOUR WALLS OF  
THEIR OFFICES AND  
EMBRACE DIGITAL  
TRANSFORMATION

THE FUTURE OF WORK

HOW WILL JOBS AND  
MANAGEMENT CHANGE?

DIGITAL SUPPLY NETWORKS

WHAT DOES A MODERN  
SUPPLY CHAIN LOOK LIKE?

CUSTOMER ENGAGEMENT

WHAT ARE THE BEST WAYS  
TO BUILD RELATIONSHIPS?

INTERNET OF THINGS

HOW CAN CONNECTIVITY  
REVOLUTIONISE BUSINESS?

# THE DEMOCRACY OF COLLABORATIVE NETWORKS

Companies must engage with broad networks and rethink their supply chains in order to remain relevant in today's business landscape

On November 10 2015, the 20th birthday of UK airline easyJet, the company dispatched an email to the millions of passengers who had flown with it during that time. Not so remarkable, you might think. What company wouldn't trumpet 20 years of profitable existence?

But this was no chest-thumping message. Instead of highlighting the fact that the low-cost airline had survived and prospered during two decades of turbulence in aviation, the airline chose to celebrate its passengers instead. "Hi Margaret", it said to one customer. "Remember your first ever trip? It was September 26 2007 when you left Glasgow behind and stepped off the plane in Berlin. And you've come so far - 26,251km to be precise. That's more than halfway around the world! All in all you've been on 12 adventures with us, spanning four different countries."

As an example of the effective application of consumer-facing, digital-based networking, easyJet's communication could hardly be bettered. The airline had capitalised on its birthday to mine mountains of accumulated data to launch a dialogue with its passengers that will surely, in the long run, serve to engage the latter more deeply with the group. For good measure easyJet dangled a carrot: "you've been to London with us, why not try Milan?"

As enterprise software giant SAP pointed out in *Digitalist Magazine*, a native-digital magazine designed for the mobile experience, it's this kind of initiative that captures the opportunities provided by today's communications revolution to help grow business. "With advances in networking, cloud computing, social media and mobile

technologies, more companies have the opportunity to connect, communicate, and collaborate with important external elements of their value chains", the company explained. "Building on the early days of electronic trading networks, richer collaboration networks will enable companies to engage more deeply with customers, suppliers, banks, and other trading partners." There's no more important element in the value chain than the customer, as easyJet clearly recognised.

## Engagement gains

The gains from such engagement are profound. "Those that partner effectively and securely can bring innovative products to market more quickly, boost efficiency, improve visibility, increase agility, and reduce risk", SAP noted.

In one sense, sending a message to a client, supplier or trading partner is essentially a form of networking, like attending a cocktail party or a conference. But the intelligent employment - and deployment - of the full range of communicative possibilities known as collaborative technology can turbo boost a business's networking capabilities in quantitative and qualitative ways that were unimaginable even a few short years ago.

In principle, collaborative technology as applied to commerce does imitate the interactions of social media, except it's much more complicated. As Quentin Fisher, Associate Vice President for Global Analytics at UK-based consultancy HCL Axon, said, just as individu-

als have moved past one-to-one emails to social networks to stay connected and informed, linear supply chains are transforming into collaborative supply networks, enabling companies to work better together. The tools for these enhanced networks include cloud computing, social media, analytics and mobile systems.

By tapping the potential of these tools, businesses have unlimited - or certainly indefinable - opportunities to create networks that enable higher levels of engagement, transparency, collaboration and trust in the business world. And, as a bonus, these next-level networks usher in a period of commercial democracy. "People can be connected at a much lower level in organisations", said Fisher. "Companies can be much more agile and adaptive. They can make faster and better decisions."

As a recent large-scale study by consultants McKinsey & Company of more than 3,000 company executives found, networked enterprises - that is, companies that use collaborative technology to connect internal processes to customers, suppliers, and partners - outpace their peers in nearly every category of business performance, from market leadership to increased sales and profitability.

So it seems companies cannot afford not to explore the full potential of collaborative technology. As Rita Gunther McGrath, an Associate Professor of Management at the Columbia Business School and author of *The End of Competitive Advantage* argued, the price of ignoring what collaborative technology can do is far too high, especially because of the rapidly shortening time-life of

products. Competitive advantage is ever-more fleeting, she said. Customers are fickle, product lifecycles are shrinking, and companies won't keep up if they try and go it alone. Richer business networks will be the platform on which successful companies innovate, collaborate, grow, and continually evolve - in terms of both speed and scale.

This has been coming for a while. In his 2005 book *The World is Flat - A Brief History of the 21st Century*, *New York Times* columnist Thomas Friedman alluded to events such as the attack on the World Trade Center in 2001 as just one of the precursors for where the globe's increasingly open architecture, in communications, as well as in other areas, was taking us. He explained how the flattening of the world happened at the dawn of the 21st century, with enormous implications for countries, companies and individuals. Friedman highlighted, for example, how the convergence of technology and events allowed India, China and many others to become part of the global supply chain for services and manufacturing.

And that in turn has created an explosion of wealth in regions such as Asia, itself a phenomenon of the flatter world, that has given people a huge new stake in the success of globalisation. Thus, in a virtuous circle, businesses outside those regions have previously unimaginable opportunities that can only be accessed through collaborative technology.

As the 2015 analysis of Asian wealth by bank Julius Baer predicted, the pool of investable assets held by high-net-worth individuals in Asia could reach \$14.5trn by 2020 - that's an increase of 160 percent in the current decade. And

this wealth will emerge in countries that were once economically depressed.

Although the story of growing wealth in China is well known, several other nations, such as the Philippines, India, Taiwan, and Malaysia are witnessing spectacular increases in buying power. As Boris Collardi, Julius Baer's CEO, pointed out: "While we have tempered our optimism as to the rate of growth, there is still much reason to look to Asia as the greatest garden to grow millionaires."

an independent business consultant and former supply chain and finance executive told *Digitalist*, companies are beginning to define the supply chain as a much broader business network, starting with their supplier's supplier and ending with their customer's customers. Business networks must allow companies to transact quickly, collaborate in real time, and access information from their network of partners when and where they need it, he added.

Does this mean that the vertically integrated company - the one that makes everything under one roof - is dead and buried? Many think so. British Nobel prize-winning economist Ronald Coase is probably most closely associated with the concept of vertical integration. The far-sighted Professor Coase studied transaction costs - those incurred from buying or selling things - and showed that companies could reduce those costs by performing functions in-house rather than dealing in the marketplace. In short, he believed companies should control the value chain.

But that was then. Coase was born in 1937 when roads were still mostly dirt and, as *Digitalist* put it, "robots were things you read about in pulp fiction". By the time the great economist died in 2013 at the age of 102, the world had changed. Transaction costs had dropped steadily, thanks mostly to better transportation networks and greatly increased automation; and then they plummeted further with the introduction of PCs and distributed networking.

The world had changed. And yet many companies still remain wary of doing business outside their four walls. ○

## TOP BARRIERS TO CROSS-CHANNEL MARKETING

LINKAGE (NO SINGLE CUSTOMER VIEW):

32%

COMPANY'S CURRENT TECHNOLOGY:

31%

ORGANISATIONAL STRUCTURE:

31%

Notes: Based on survey respondents  
Source: Experian

BY 2020 THE POOL OF INVESTABLE ASSETS HELD BY HIGH-NET-WORTH INDIVIDUALS IN ASIA COULD REACH

\$14.5 TRN

# RISE OF THE DIGITAL WORKER

The proliferation of artificial intelligence, automation and connectivity will dramatically change the job market and empower employees. Humans can be the guides of our increasingly data-driven world

British-Australian mining giant Rio Tinto has employed autonomous trucks, excavators and drills recently to create the first workerless iron ore mine in Western Australia. The drivers – if they can still be called that – work out of a remote operations centre hundreds of kilometres away, where data scientists mine data collected from the vehicle’s sensors. This dynamic, known as the ‘human and digital recombination’, is but a single step on the path to a changed workplace, as connectivity and automation drive the transition to digital on an unprecedented scale.

Real-time analysis, together with emerging digital technologies and intelligent digital processes, have upended the workplace as we know it; and businesses are today subject to a deep cultural shift in work organisation, culture and management mind set. The impact is a shift towards workers looking at available information as opposed to ‘explorative surgery’ measures when the damage is already done.

Human and digital recombination, cutting-edge decision making, real-time adaptation and experiment-driven design are pushing this transformation, not just in manufacturing but in every conceivable area of the workplace. And while the technology has done much to facilitate the transition to digital, the challenges are many.

## Fat tags

Aside from Rio Tinto’s automated vehicles, other software-enabled, manufacturing-friendly marvels are around

the corner, such as kilobyte-rich radio frequency identification (RFID) tags. Basically position finders at present, tomorrow’s tags will have so much storage capacity that they will act like transponders and actually tell people what to do.

As Siemens’ Markus Weinlander, Head of Product Management, predicted: “[RFID tags] can make a major contribution to the realisation of Industry 4.0 by acting as the eyes and ears of IT. For the first time, transponders will be able to carry additional information such as the production requirements together with their assembly plan. All of this will be readable at relatively large distances.”

These ‘fat tags’ will do more than boost automation. They will also make companies more nimble-footed and, say experts, allow small businesses to compete with the giants. According to Weinlander, the new wave of RFID tags will greatly facilitate customised products because they will contain all the essential information for small runs. “To remain competitive in today’s global market environment, many companies have to be able to produce in tiny batches without higher costs”, he said.

Other practical benefits are likely. For instance, maintenance and repair work

will be made simpler, faster and more timely. As BCG Consulting points out, technicians will identify any problems with a machine from a stream of real-time data and then make repairs with the help of augmented-reality technology supplemented, if necessary, by remote guidance from off-site experts. In this way, downtime per machine will be reduced from one day to an hour or two.

## Digital people

In this brave new world of hyperconnectivity, the ‘digital worker’ – a data-driven individual skilled in converting information into revenue – will stand in the middle and direct traffic, as it were. As SAP put it in its *Digitalist* magazine, the digital worker will “create instant value from the vast array of real-time data.”

Instead of the traditional approach of gathering, processing, and moving data around while spending valuable time creating reports, digital workers will be forced to move towards predictive, scenario, and prognosis-based decision-making. SAP’s article goes on to explain: “The speed of information and data is driving such significant change in how and where we work that the digital worker is becoming a critical resource in decision-making, learning, productivity, and overall management of companies.”

In organisations where data-savvy individuals may know more about what’s happening than the boss, the top-down hierarchy will be overturned. In short, everybody will be a leader in their own particular area of expertise.

55%

OF EXECUTIVES BELIEVE THEIR ORGANISATIONAL STRUCTURE IS ‘EXTREMELY’ OR ‘VERY’ COMPLEX

22%

SAY THEY SPEND MORE THAN A QUARTER OF THEIR DAY MANAGING COMPLEXITY

## THE NEW BREED OF WORKER

### KNOWLEDGE WORKER

INFORMATION GATHERING  
INFORMATION ANALYSIS  
INFORMATION DISSEMINATION  
STRUCTURED LEARNING  
KNOWLEDGE MANAGEMENT  
TEAM BUILDING

### » DIGITAL WORKER

» REAL-TIME DATA AVAILABILITY  
» SCENARIOS AND PROGNOSIS  
» DECISION MAKING  
» SELF-DEVELOPMENT  
» VIRTUAL COLLABORATION  
» VIRTUAL TEAM BUILDING

Source: SAP

“The traditional management and organisational model is quickly getting outdated in the digital economy, and true leaders are changing their management approach to reflect this”, said SAP. Senior executives will have to be more visible and approachable for employees and customers alike – in short, both colleague and captain.

“[Managers] must juggle a distributed contingent workforce with digital workers who require real-time analysis, prognosis, and decision making. At the same time, they must develop the next generation of leaders who will actively take responsibility for innovation and engagement”, said SAP.

If done properly, this new collaborative workplace could reduce the complexity that bedevils most large organisations in an era of globalisation. According to the Economist Intelligence Unit, 55 percent of executives

believe their organisational structure is ‘extremely’ or ‘very’ complex and 22 percent say they spend more than a quarter of their day managing complexity. More than three-quarters say they could boost productivity by at least 11 percent if they could cut complexity by half.

## More jobs

But will the superconnected workplace destroy jobs? BCG Consulting thinks not. In a study of German manufacturing released in October, the think tank concluded that higher productivity actually equals higher employment at home. “As production becomes more capital intensive, the labour cost advantages of traditional low-cost locations will shrink, making it attractive for manufacturers to bring previously off-shored jobs back home”, the study predicted. “The adoption of Industry 4.0 will also allow manufacturers to create new jobs

“

Hyperconnectivity has led us to a new era, where Peter Drucker’s “knowledge worker” has come to an end and the “digital worker” now needs to step up and create instant value from the vast array of real-time data

”

to meet the higher demand resulting from the growth of existing markets and the introduction of new products and services.”

Experts such as Ingo Ruhmann, Special Adviser on IT systems at Germany’s Federal Ministry of Education and Research, agree with this finding. “Complete automation is not realistic”, he told BCG Perspectives. “Technology will mainly increase productivity through physical and digital assistance systems, not the replacement of human labour.”

However, it will be a new kind of human labour. “The number of physically demanding or routine jobs will decrease while the number of jobs requiring flexible responses, problem solving, and customisation will increase”, Ruhmann predicts. For most employees, tomorrow’s workplace should be a lot more fun. ○

## A DIGITAL-FIRST WORLD

**Bernd Leukert**, a member of SAP's executive board, spoke to *The New Economy* about the company's role in the digital economy

For more than 43 years, SAP has been helping companies to run their mission-critical business processes across all areas of business. The challenge is, as it always has been, to do the most sophisticated things in the simplest ways. *The New Economy* spoke to Bernd Leukert, member of SAP's executive board, about how the company is driving a digital transformation in business.

### **How important is the World Economic Forum to SAP's history?**

One of the hottest topics during the World Economic Forum in Davos last year was the global impact of the digital transformation, including the Internet of Things, on a new quality in innovation across all industries.

Davos is a unique opportunity to meet with customers, partners, and politicians to talk about ideas, visions and impact. Last year I also had the chance to speak with many leaders about their views on digital-driven innovation. They all agreed that today, technology and software are the most important key drivers of new ideas, innovation, businesses, and business models.

### **What do you feel are the biggest challenges facing global business?**

I can narrow this down to one word: complexity. When companies started their business, it was all about one idea resulting in one promise driven

by one core competency. Some ideas were so powerful that they resulted in major enterprises. And there they are now – in a big enterprise. They are there with all that comes with it: many more ideas, promises, competencies, resulting in many more products and customers. That is not all: consumer behaviors significantly changed, accompanied by an unknown global presence and the amount of data they have to deal with. They changed the face of the world with their one simple idea, with their promise. But they need to tackle what comes with it: more administration, more management – what generally makes them slower and less responsive.

We estimate that, in an average Fortune 500 company, somewhere between 25 and 30 percent of the workforce is not directly connected with the product or the customer. This does not mean that these people are not doing a fine and valuable job. It just serves as a measure how much more effort it is now to run such a company at global scale.

But these processes and standards, this complexity, makes a company rigid and constrains innovation. It makes it very hard to change things, to adapt, to create, to innovate. And this is exactly what businesses need to do in order to survive in today's digital economy: they have to innovate, re-think their business and their business models.

### **How do you see the digital economy progressing in the coming years?**

The digital economy is no hype; it's a reality. You can see it everywhere. Every company will experience a much higher percentage of their value chain being delivered by IT systems than in the past. Software is dramatically changing how the idea of businesses is being lived.

Digitisation and the Internet of Things will be increasingly significant in the business world over the coming years. Enterprises will discover that solutions based on new layers of connectivity can transform their operational processes, unlocking enormous value through greater efficiency. These enterprises will also find themselves with opportunities to transform their customers' experiences.

### **How is SAP driving this digital transformation of business?**

With everything we do, we enable our customers to be successful in the digital economy. We want to be the enabler for our customers to win in the digital economy. Software will become the new kingmaker, and it takes three steps to make this real. First, enterprise software must enable companies to spend less time with non-value driving tasks in their business and less effort to keep the lights on. That's why we built and run SAP S/4HANA. That is part of what we call 'run simple'. »



Today, it is all about selling outcomes rather than products. This requires the tight integration of customer, processes and products

Second, companies need to actively embrace the digital economy and build differentiating processes with software making use of big data, cloud, and the Internet of Things. That's why we built the SAP HANA Cloud Platform. On that platform, not only SAP, but also partners and customers will build new-edge applications. These edge applications will be interwoven with the new, flexible core – SAP S/4HANA.

Third, we are on a journey to lead the digitisation of our customers' industries. We want to ensure that they emerge as industry leaders who are creating disruption around them, not becoming victims to it. Digitisation is driving the modernisation of the work landscape, which will transform the experiences of people across all different walks of the business, whether it is someone doing repairs, the person managing a retail store, or a sales associate just about to walk into a customer meeting. Every one of these roles needs to be rethought as digital experiences that are real-time and highly contextual.

Achieving this mission will be an industry effort. It is not just SAP and our end-to-end solutions that will drive this digital transformation; it will take a broader ecosystem of customers and partners to rethink and reengineer all those experiences. This means that there has to be a strong development platform in play, not just for SAP to build its own software, but a platform that can serve the entire ecosystem.

**What role does SAP see itself as playing in the digital economy?**

With 74 percent of the world's transaction revenue touching an SAP system, in my opinion we play a crucial role. I would even say we serve as key innovation enabler for our customers in the digital transformation.

One of the major drivers of digitisation is the Internet of Things, a technology trend with particularly high business potential that influences society and changes our daily lives. The Internet of Things has the power to optimise existing business processes to achieve bottom line results in the short term, while completely transforming businesses in the long-term to create new

products and revenue models in a fully connected world. It is the biggest opportunity to not just renew the existing business, but to build new business as a leading innovator.

Our solutions for the Internet of Things enable customers to continuously generate data-driven intelligence from connected things that allow them to link core business processes to new business models and customer experience. They bring together two worlds: the world of technology, sensors, and machine data with existing business processes, applications, and practices to further drive automation. They bring together the real and the virtual world.

Helping our customers put the Internet of Things to work for their businesses requires us to work with a host of new partners. Never before have so many different types of vendors been required to support new ways of doing business. While our technologies and applications will play a critical role in this environment, we have a deep appreciation for members of our community that will help us create this new value for our customers.

**What have been SAP's biggest achievements in recent years?**

Once in a while, you not only have the chance to reinvent your own business, but to reinvent a whole market by reinventing ourselves.

We have reinvented our platform and have led the IT market into an in-memory based platform, where structured and unstructured data can be processed on one platform. We have also reinvented the core application business with SAP S/4HANA and our entire solution portfolio in the digital framework by enhancing the digital core with software as a service line of business solutions like SuccessFactors in human capital management; and SAP Cloud for customer and hybrid commerce in cus-

tomers relationship management (CRM). When we founded the software category ERP, it basically was the electronic form of keeping your books, controlling your warehouse. It virtually documented what was happening in an enterprise. You still see these roots clearly in applications today.

Software can do so much more. Software can add so much more value: it can work intelligently with the data in the entire company – it can help solve problems and it ensures transparency as we can connect this virtual enterprise with real-world data. It can transform from a system of records towards a decision support system, where options are simulated and business impact is calculated for end users. You can say that the brain of end users is integrated into the system via software algorithms.

Let's take production planning as an example. In the past, the systems identified a problem and offered all the transactions to solve them. But the actual work, the intelligence, had to be accomplished by the user – figuring out how to best solve the problem, whether that be to delay a shipment, source raw materials from another vendor or plant or similar. Now the software can actually propose solutions that have been evaluated for their financial impact – or even get executed automatically. And that's what SAP S/4HANA is all about.

SAP S/4HANA crosses any silos in a company. It is like the crystal ball for a company. You can flexibly, easily access data from any function in your company and make real sense out of it – and obviously in real-time. It makes the whole value chain transparent.

**How is SAP helping companies engage better with their customers?**

Today, we see increasing amounts of data, generated in the last few years. This is where the digital transformation starts. In fact, about 90 percent of all global data has been generated in just the past two years. The worldwide amount of data is to increase tenfold until 2020.

In the digital age, the customer is the epicentre of change. Again, consumer behaviours have significantly changed. They expect the ability to interact with

companies anywhere and anytime. Making the customer experience and interaction seamless across all channels is more crucial than ever. Addressing consumers at all points of their journey, on the right device, at the right time, with the right, personalised offer, is key to success.

Every customer is engaging differently – across a range of channels and touchpoints – and this changes every time customers engage with a business. This creates significant complexity for the enterprise. Companies need to develop a new understanding of consumers: by gaining real-time insights into the context of consumers, they can deliver highly individualised and convenient customer experiences across all channels.

We are also talking about highly individualised products here. If companies really want to be successful in an environment, they need to make sure to tackle it end-to-end. It is highly inefficient to have different solutions for different products. That's why we offer customers the platform and the applications, and not only one or the other.

This means that we have redefined CRM. For example, with the solutions we announced in fall 2015, we are going beyond traditional CRM, encompassing marketing, sales, service, and omnichannel commerce – all integrated. We are supporting end-to-end customer engagement in a way that none of our competitors can.

**In what ways are working conditions being transformed by increased connectivity and flexibility?**

Increasing digitisation implies new ways of working and learning. In a smart factory, where human beings, machines, and resources work together in a network, there will be a significant need for qualification: existing employees need to be enabled to study further. Also, the younger generation is educated well academically and professionally, but insufficient for digital requirements.

At the same time, a smart factory creates additional positions, for example when we talk about the development of systems or services that are linked to products. The flexible processes also

**SAP IN NUMBERS**

296,000 CUSTOMERS IN 190 COUNTRIES  
80%+ OF SAP CUSTOMERS ARE SMES

**SAP'S CUSTOMERS INCLUDE:**

87% OF THE FORBES GLOBAL 2000  
98% OF THE 100 MOST VALUED BRANDS  
100% OF THE DOW JONES TOP-SCORING SUSTAINABILITY COMPANIES

**SAP'S CUSTOMERS PRODUCE:**

78% OF THE WORLD'S FOOD  
82% OF THE WORLD'S MEDICAL DEVICES

have to be managed. All this creates an extremely interconnected and diverse working environment that offers each and every employee all kinds of different tasks. In the future, it will not only be about qualification, but about the ability to be agile.

With our new digital learning offering as part of the SuccessFactors suite, we enable companies to accelerate learning, improve quality of content, and allow faster penetration of changes.

**How will the Internet of Things revolutionise business?**

The number of internet users worldwide has grown enormously over the last 15 years and is now estimated to be close to three billion. Even more striking is the vast array of intelligent devices that are now connecting to the vast information network around them.

Estimates vary, but many analysts speculate that the number of connected devices could be more than 50 billion by 2020 – extending the reach of software-enabled insight by an order of magnitude. Along with the growth in connected devices comes a wide array of opportunity.

Insight can be offered to businesses and consumers wherever products exist. Devices can analyse their own contextual information and advise cus-

tomers about optimal ways they can be put to use. We have long envisioned these types of intelligent devices – now they are a reality thanks to recent gains in the realms of connectivity, sensor technology, and real-time data processing for a wide array of products. Today, it is all about selling outcomes rather than products. This requires the tight integration of customer, processes and products.

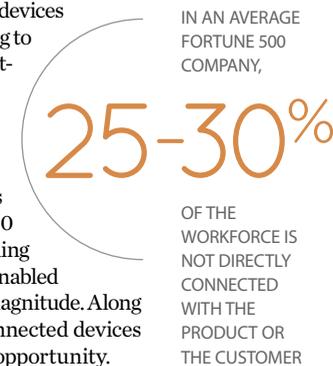
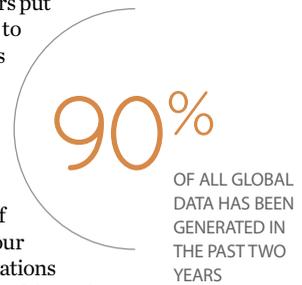
Adding intelligence to an ever-expanding network of connected devices will create tangible value for enterprises around the globe. No matter how many devices will be connected by 2020, the implication is the same: the way everyone does business will change. The Internet of Things will allow companies to connect their core business systems to devices at the edge of the network, transform business processes to gain operational efficiencies, and reimagine their business models from the ground up. As an example, we are enabling companies to introduce business models like pay-per-use across all their partners.

**What ambitions does SAP have for the future?**

Our strategy is simple: we want to become the cloud company powered by SAP HANA. 'Run Simple' is our organisational principle in driving and executing on our strategy. Because 'run' is what we do. We run more than 296,000 of the most relevant organisations in the world.

Our innovative solutions are a strategic enabler in today's global economy. We are uniquely positioned to support customers to solve the complex challenges they are facing today. With SAP HANA, we are simplifying IT landscapes, technology, and business models. We further simplify how customers consume our solutions by bringing them onto our cloud.

Our customers are at the heart of everything we do. Our software is interlocked with their companies – we run their businesses. That's why it is a given that we will stay close to our customers and continuously adapt to changing market demands both in our industry and our customers' markets. We are both a driver and an enabler of the digital transformation. ○



# COLLABORATING FOR SUCCESS

The sharing of knowledge and data is not something that always comes naturally to traditionally competitive companies, but collaboration is the key to getting ahead

Unless you frequent the personal hygiene shelves at the supermarket, you're unlikely to have heard of Procter & Gamble's Crest Spinbrush. Yet the product is something of a milestone in the development of fast-moving consumer goods.

Battery-powered, the product is advertised to move bristles 20 times faster than a manually-powered brush, but probably its most interesting feature is that, unlike most of the goods developed by P&G over the years, it was the result of collaboration with individual inventors.

Suddenly, just after the turn of the millennium, P&G had a change of heart. At that time less than 10 percent of the company's new products were the result of external collaboration. But few, if any, markets move faster than FMCG (fast-moving consumer goods) and the company was concerned it wasn't innovating rapidly enough. The management, fearing competitors might launch new products that could disrupt its markets, embarked on a daring experiment. Instead of trying to create everything in-house, as would a vertically integrated company, P&G set a target of increasing the percentage of products delivered in partnership with others to over half. In short, by five times.

## New thinking, new products

The results of what amounts to a reversal of a long-held strategy have been spectacular. Within a few years the Crest Spinbrush was followed by Olay Regenerist creams in collaboration with chemical suppliers, by a line of probiotic

supplements (with university spinouts), and in a particularly dramatic wrench with the past, by Glad's Press'n Seal plastic wrap that was developed with competitors such as The Clorox Company.

Dubbed 'Connect and Develop', this collaboration – or external partnering – took the consumer giant even further than it had planned. By 2008, more than half of its products were being worked up with the help of what would once have been described as outsiders and collaboration is now a fundamental part of its business.

In one sense, P&G's turnaround was the result of a certain humility. The company recognised that it didn't know everything and couldn't do everything. There were a lot of smart – and perhaps smarter – people out there and the conclusion was it should engage with them. Now that P&G is bringing to market products that were once beyond its areas of expertise, the collaborative network has reduced risk. New products are hitting the market faster, quality has improved, and potential competitors have become partners.

Today P&G has built up a network of outside collaborators that, between them, aim to add \$3bn a year to the company's annual sales growth. In short, even such a cutthroat business as FMCG doesn't have to be war.

P&G was ahead of its time. Few were comfortable with 'open-sourced' strategies, even though advances in networking, cloud computing, social media and mobile technologies made them possible. Between them, these transformation technologies have given

PROCTOR AND GAMBLE HAS

65 BRANDS

ACROSS

10 PRODUCT CATEGORIES

INCLUDING

21 BRANDS

WITH ANNUAL SALES OF BETWEEN

\$1BN & \$10BN

COLLABORATION HAS HELPED BRING DIVERSITY AND PROFIT

companies the opportunity to connect, communicate, and collaborate with important external elements of their value chains in ways that were simply not possible before.

Thus, we're witnessing the era of electronic trading networks that facilitate much richer collaboration with all stakeholders – customers, suppliers, banks, other trading partners, even rivals. As McKinsey's David Edelman, Principal at the firm's Boston office and co-leader of the global digital marketing strategy group, explained: "Those companies that partner effectively and securely can bring innovative products to market more quickly, boost efficiency, improve visibility, increase agility, and reduce risk."

## Barriers to success

Companies face two main barriers though, as SAP explained. One is psychological, the other technological. The

## SAP ON DIGITAL SUPPLY NETWORKS

With a global middle class that is expanding 3x by 2030, there is increasing pressure on key business resources, which are in turn growing at a lesser rate of 1.5x. The answer to this mismatch lies in enterprises securely sharing data in real-time to enable next generation commerce applications to thrive. The digitisation of everything, from toothbrushes to machines, is creating new intelligent digital 'networks of networks' that fundamentally change the way commerce can be managed, optimised, shared, and deployed. This results in \$5.6trn in savings through connected vehicles, a 67 percent increase in crop yields, and a 22 percent increase in supply chain efficiency.

psychological barrier comes from the fact that corporate cultures have to be dismantled. People may hesitate to share information and resources outside the company for fear of losing status and control. And some of these concerns are justified.

When the business network extends beyond a company's four walls, explained SAP, the potential security risks multiply. But solutions are emerging all the time, such as the so-called 'zero trust' model; a data-centric approach that would still enable an ecosystem of partners, contractors, suppliers, and customers to connect creatively with each other.

And then there's the problem of conflicting technologies. Highly customised legacy systems and the wide variety of technology providers, each with their own carefully protected intellectual property, have always made it difficult to share even standard data. But just as

companies have lately shown a willingness to forgo customisation and control in exchange for the convenience of 'software as a service' and cloud technologies, they'll be more willing to embrace the standardised offerings that will enable increased data and intelligence sharing through business networks.

Nobody's underrating the importance of cyber security either. By implication, collaborative networks increase the volume of sensitive commercial data that is collected, while procurement decisions can create the risk that vendors will treat sensitive intellectual property with less care than required. But as nations, albeit belatedly, begin to cooperate on the menace of cyber attacks, the risks of such attacks are likely to be reduced.

Collaborative networks – or digital supply chains, if you like – are also based on one obvious fact: you can't keep banging your head against a wall for too long. Explained Bill He, Vice President of

“

Intelligent digital 'networks of networks' are fundamentally changing the way commerce can be managed, optimised, shared, and deployed

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Global Strategic Sourcing for paper giant Kimberly-Clark: "The low-hanging fruit [in supply chains] is gone. You can only reduce procurement costs by 10 percent a year for so long." And ultimately that tactic will rebound on the procurer, warn management consultants, because suppliers will start cutting corners to maintain their margins.

Worse, it also prevents the development of mutually rewarding relationships because it prevents companies and suppliers from establishing a more mutually beneficial relationship. As McKinsey said, in standard procurement deals, one company sends out a request for proposal, gets the proposals, picks a winner, and negotiates a deal. But, explained He, this process only reveals a small fraction of what the purchasing company really needs and about the same amount of what the supplier could actually provide. Thus, both purchaser and supplier miss out on a lot of knowledge they could both use.

However, the technology must first be up to the task, with networks allowing companies to transact quickly, collaborate in real time, and access information from their network of partners when and where they need it. As this starts to happen, we're entering an era of 'knowledge-based sourcing', a collaborative approach that allows suppliers and customers to share much more information up front to jointly identify opportunities that will deliver benefits for both parties, whether it's three months from today or five years from now. "Knowledge-based sourcing is the future of the business network", concluded He. ○

# SEE IT, CLICK IT, TOUCH IT, BUY IT

Retailers have learned that omnichannel processes help both online and in-store sales. By combining the experiences, customers are happier, and profits rise

Galeries Lafayette, the Paris-based department store chain, has had a large and loyal following for most of its 120 years. Its displays of goods including the famous weekly fashion show have become almost like theatre, and customers from all over the world have long flocked into its 64 outlets to be entertained as well as to buy.

But around 2008, the custodians of this legendary brand could foresee that beautiful locations just weren't enough in the digital era. The company could do much better by virtualising the in-store experience through multiple channels that brought its goods within reach of a vastly wider audience. The company's shareholders were putting pressure on it to do so.

After a disappointing first attempt that didn't embrace the full potential of digital transformation, in 2011 Galeries Lafayette engaged SAP to build a so-called 'omnichannel experience' by connecting isolated avenues of sales in a more cohesive whole. The glue for creating a more unified customer experience was mountains of data that had been lying dormant. By sharing that data across channels, Galeries Lafayette could offer a much richer retail proposition. The platform employed for the transformation was known as 'hybris Commerce Accelerator'.

In adopting hybris, the chain was following in the footsteps of over 500 firms, many multinationals, that had chosen

the platform, including Bridgestone, Levi's, Nikon and Nespresso.

The result? Within two years the chain has nearly quadrupled traffic to its site. But the word "traffic" doesn't come anywhere near conveying what the omnichannel strategy did – and is doing – for Galeries Lafayette. By embracing omnichannel, the chain has exported those eye-catching displays to a vast new viewership. Omnichannel enables the chain to leverage its rich data into online sales, in-store pickups, exclusive promotions and other consumer-enticing experiences.

In the process a strange thing has happened. Customers who once never bought anything without visiting a store have learned the attractions of online buying, while the reverse has also occurred: regular online shoppers are now dropping into brick and mortar stores. Even better, all customers are buying more on a regular basis with highly gratifying bottom-line results. In 2012, just as its omnichannel strategy was bedding in, Galeries Lafayette earned just three percent of its €2.8bn in revenues from online sales. That percentage is growing rapidly.

### Following through

Creating a successful omnichannel experience comes down to one word: consistency. Customers expect the company to speak with the same voice across all interactions. "They aren't

concerned about which channel they use", SAP explained in an article in October. "They want fast, simple, convenient and pleasurable experiences, delivered consistently."

However, delivering consistency across channels means nothing if those channels don't integrate seamlessly with each other. There can be no dead ends in the omnichannel customer experience. As SAP added: "disjointed experiences can create frustration and anger that can lead customers to cut off the relationship."

Reduced to its essentials, the same shopping experience enjoyed by people in retail outlets must be extended to people online and on mobile devices. That's in terms of displays, goods available, pricing, special offers, returns and everything else.

Retailers that resist moving down this path risk losing revenue to competitors and becoming irrelevant to customers. Earlier this year, SAP's Dr Ingo Woesner, product manager for Retail Omnichannel Commerce, put it neatly: "Omnichannel commerce is going beyond the hype phase to becoming mandatory for every retailer across all retail segments. It promises to address the customer in a personalised way with an offering [that is] harmonised across all channels. This will boost revenues for omnichannel-driven retailers compared with channel-specific businesses that operate in silos."

“The perfect retail world becomes more and more achievable by the day”

### Retail interaction

Simultaneously, the most forward-looking retailers have adopted digital to turn the in-store experience almost into an interactive movie. When shoppers walk into the flagship store of luxury retailer Burberry in London, they are confronted with full-length screens along the walls that alternate between audio-visual content and live streaming of models on the catwalk. Entranced, customers like to use their mobile devices to interact with what they see on the screens.

And that's before they get to the fitting rooms. Attached to the clothing are radio-frequency identification tags that trigger a display on the mirror showing how the item was crafted. And to help cement the sale, iPad-armed salespeople are standing by to help customers view online content and answer questions. Thus, the virtual and physical experiences are mutually enhanced. As Burberry's Chief Creative Officer and CEO Christopher Bailey explained: "Digital must accompany customers on every step of the journey, whether online or off."

However, it isn't easy to achieve this transformational conversion, as Dr Woesner acknowledged. This is particularly true of companies with dated IT systems. "The switch from a grown-up 'zoo' of channel solutions and sales heritage to a unified omnichannel strategy ....can take years or even

DIGITAL COMMERCE LEADERS BASED ON 'ABILITY TO EXECUTE' AND 'COMPLETENESS OF VISION'

SAP

IBM

ORACLE

Source: Gartner

a decade to transform the company", he warned.

Ticking off some of the challenges, he cited the disparate sales channels from bricks-and-mortar stores to ecommerce platforms that retailers typically employ. Others run franchise chains that are difficult to unify. While customers can usually register on any one of a retailer's channels, not all the channels will run customer loyalty programmes. Irritatingly for customers, promotions or discounts may be available on one channel but not another. And, damagingly for the integrity of the brand, marketing campaigns "are rarely synchronised across channels such as television, print,

“What would you say are the primary drivers behind your organisation's investment in omnichannel initiatives?”

OUR CUSTOMERS ARE EXPECTING IT:

66%

WE EXPECT TO SEE AN UPLIFT IN OUR CUSTOMER SATISFACTION METRICS:

59%

TO GAIN A COMPETITIVE ADVANTAGE OVER ONLINE PURE PLAYS:

57%

TO DRIVE ADDITIONAL EFFICIENCIES AND COST SAVINGS:

54%

THE OMNICHANNEL CUSTOMER HAS A HIGHER LIFETIME VALUE:

51%

Notes: Based on survey responses of 526 B2B organisations around the world that sell direct to business online Source: Forrester Consulting

web, mobile, social media and the store", according to Dr Woesner.

The good news is that this perfect retail world becomes more and more achievable by the day, as Galeries Lafayette, Burberry and other digital pioneers have proved. "Many issues can be [already be] addressed by SAP's capabilities", Dr Woeser explained.

Does the era of multi-channel retail mean that old-fashioned, face-to-face retailing is dead in the age of digital selling? Quite the opposite, Galeries Lafayette's stores welcome more than 20 million visitors a year, equivalent to 55,000 a day. And, as Burberry has shown, the one enhances the other. ○

## A MORE INTELLIGENT WORKPLACE

The Internet of Things is already revolutionising business, generating revenue and improving customer experiences. And we've only seen the tip of the iceberg

John Deere doesn't sell just tractors and other heavy-duty vehicles any more. Buyers of its equipment can also become the beneficiaries of a stream of useful information – fuel consumption, performance, the need for repairs and maintenance, and even the weather, all of which are extremely helpful for farmers.

How does John Deere do this? The answer is a genuinely transformational development dubbed the Internet of Things (IoT) or, in the case of John Deere, the Industrial Internet of Things (IIoT) that is based on data-hungry sensors and a host of other lightweight and increasingly low-cost devices. Proliferating rapidly as their virtues are recognised, these devices gather data that customers can use and then send out as a personalised stream of information that ultimately transfers into things that makes customers grateful. It hardly needs saying that services such as this breed loyalty to brands as well as adding extra streams of revenue.

As the IoT proves its worth, the bigger manufacturers are adopting

it wholesale. ABB, the power and automation giant, makes industrial robots that are used for everything from mass-producing cars to much more discrete products.

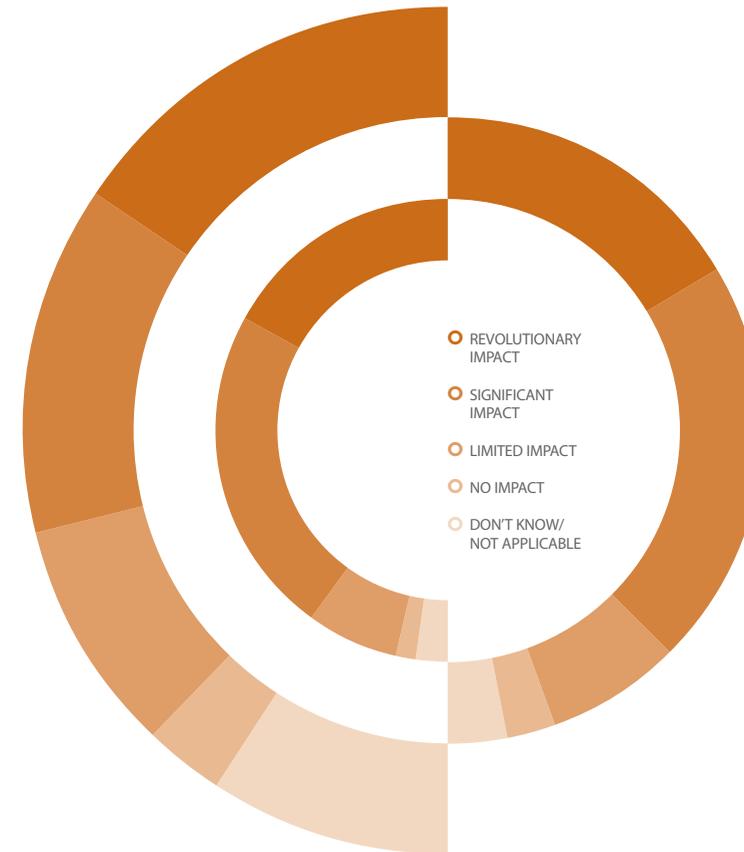
But rather than just selling and installing these intelligent machines, ABB tracks their health on a real-time basis in a way that allows it to offer additional services such as remote monitoring, preventive maintenance, and software patching if things go wrong.

### Profit networks

Studies by SAP, Accenture and other consultants show that the IoT will be the catalyst for opportunities estimated to be worth \$14.2trn in extra revenues by 2020. Essentially, the phenomenon of the IoT will create a more intelligent workplace that enables companies to devise new and better products and services. In concrete terms, all this will happen because the plethora of data-rich devices will do much of the thinking on behalf of increasingly skilled workforces that can digest and interpret the data

to the company's benefit. Among the benefits claimed – and already proved – for the IIoT are:

- › Seamless and productive communication between devices that monitor the manufacturing process;
- › Lower incidence of failures in manufacturing because machines will develop fewer defects;
- › Lower operating costs because efficiency is improved through, among other things, reduced downtime with faulty equipment;
- › Higher productivity because machines are smarter and have a better idea of what's required of them;
- › Shorter, more customised and automated production runs;
- › Improved customer interaction through the increased use of more interactive interfaces;
- › Employee-friendly gains such as fewer accidents and more interesting work;
- › Higher security in plants as locks on doors and windows are equipped with sensors and camera systems that alert managers the moment an intruder attempts to gain entry.



What impact do you expect the Internet of Things, mobile and internet to have over the next three years?



Source: Economist Intelligence Unit

“We are miles away from reaching a tipping point with the Internet of Things. In fact, we are barely scratching the surface of its potential”

### Industrial Revolution 2.0

Following the lead of the first manufacturers off the blocks, companies such as Germany's Bosch, General Electric (GE) and US-based power solutions group Johnson Controls are all working on systems where machines automatically predict failure and trigger maintenance, without the necessity of human intervention and costly disruption to production. Toyota reports it is saving more than \$500,000 a year at its Alabama plant through a similar system to Bosch, GE and Johnson Controls.

Automotive giant General Motors has introduced a common network architecture across its plants that enables just one team of troubleshooters to deal with engineering problems around the world, with gratifying results to the bottom line. GM says the system has slashed network downtime by around 70 percent. Little wonder then that an observer such as Megan Anderle, Editor at Dell's Tech Page One site, said: "IoT-connected devices used in business settings are just beginning to catch on in a change akin to the Industrial Revolution."

But while all this is good for industry, the biggest beneficiary will be customers and client, which is why software designers are working backwards from the perceived needs of end-users rather than forward from a set of instructions given by office-bound managers. Thus, automobile manufacturers are already installing hundreds of sensors in their latest models and collecting information that can be used in everything from customer service to product design in a shining example of mutually beneficial collaboration. And it's why insurance firms offer a service known as telematics – an interdisciplinary development that pulls together telecommunications, electrical engineering such as sensors, and vehicular technologies – that monitors how well their clients drive. If they prove themselves to be safe behind the wheel, lower-priced policies will be their reward, and of course vice versa. Bus and van drivers will also become the beneficiaries (or victims) of telematics, according to the level of their skills. In the hyperconnected world, there will be no escape from the truth. »

1%

OF TODAY'S DATA IS  
BEING TURNED INTO  
BUSINESS BENEFITS

86%

OF RESPONDENTS IN AN ECONOMIST INTELLIGENCE  
UNIT SURVEY SAID HYPERCONNECTIVITY HAD BEEN  
BENEFICIAL FOR THEIR ORGANISATION**Business model transformation**

As heavy industry exploits the opportunities of the IIoT to transform the customer experience, other companies are using the IoT to transform themselves. For instance, sportswear giant Nike's intelligent wearable devices that monitor physical activity are turning the company into a digital fitness advisor that absorbs the information provided by satellite-linked watches and repackages it into programmes that make athletes fitter and faster.

ISAP brings together the sharing economy, algorithmic economy, networked economy and the idea of IoT to better serve customers and innovate new business models. By connecting businesses to this reimagined digital core, companies can create a platform for resource optimisation and future business innovation and enable a fluid, nimble, real-time digital business.

Although big companies have the resources – and incentives – to invest in IoT, this particular revolution is not confined to global giants by any means. A study by McKinsey shows that smaller companies (as well as emerging economies) can harness hyper-connectivity to their considerable profit.

Concludes McKinsey: "Globalisation has become a reality for smaller niche producers in a way that would have been difficult even a decade ago."

**Smarter and smarter**

The race is on to render the new wave of data-capturing tools – the sensors, beacons and other smart devices – even more powerful and effective. As SAP's David Newman pointed out: "The IoT makes the capturing and interpretation of raw data more effective [but] the quality of the insights generated from it depend on how relevant that captured data is. To gain better and more accurate insights, sensors or endpoints need to be more intelligent." In short, the data must be made so relevant that its value can be quickly spotted and turned to good use.

Newman believes that an emerging technology known as software-defined infrastructure (SDI) could be the answer. An exciting development, SDI is being developed by, among others, chip manufacturer Intel. It aims to put machinery or other equipment under the control of software with no operator or human intervention. The main point, say its supporters, is that SDI allows the production of bespoke data of specific benefit to the entity using it.

With SDI and other IoT developments happening on the sidelines of the manufacturing and service industries, we've still got a long way to go. "We are miles away from reaching a tipping point with the IoT", said Newman. "In fact, we are barely scratching the surface of its potential."

At the moment the big investors in the IoT and the capture of big data for commercial ends are those sectors for whom the benefits are more obvious. As technology consultant Gartner pointed out in a recent global report, the pioneers are media and communications, banking, and services. But others are catching the train – transportation, health and insurance are also early adopters.

And how is that money being invested? According to Gartner's survey, it's on efficiencies that are linked to customer experience. But some organisations are engaging in more of what the consultant termed "game-changing" activities such as developing new products and business models; SAP, as we have seen, is a leader in this regard. Indeed, nearly a quarter of those surveyed have got so good at it that they are monetising the data directly. "This is encouraging, as Gartner believes that the big opportunities lie mostly in these areas."

With all this happening, people such as David G Simmons, an executive at Psi-Kick, a manufacturer of ultralow-power sensors, are no longer seen as wild-eyed visionaries when claiming: "The Internet of Things will fundamentally change a lot of how we do things, at the same scale as the world wide web transformed the workplace in the nineties." ◦

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