

BEST PRACTICE.

DIGITIZATION
INDUSTRY 4.0/SMART CONNECTIVITY
WIENERBERGER
DR. MANFRED IMMITZER/NOKIA
AUTOMOTIVE INDUSTRY IN CHINA
CLOUD BROKER
JIM HAGEMANN SNABE
DYNAMIC WORKPLACE

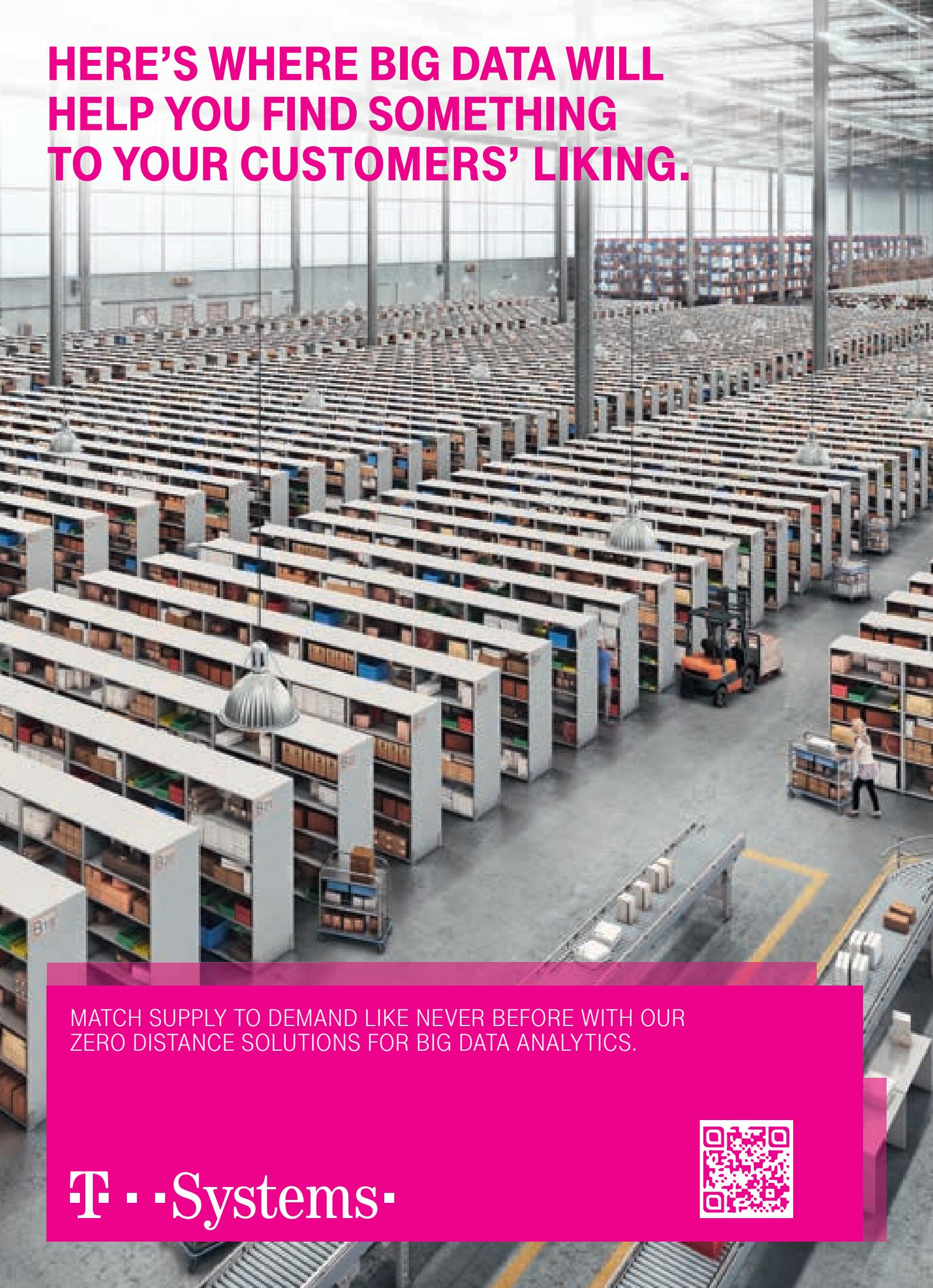
Issue 2/2014

T-Systems

My
brain is
experiencing
a technical
upgrade.

Please
stand by ● ● ●

HERE'S WHERE BIG DATA WILL HELP YOU FIND SOMETHING TO YOUR CUSTOMERS' LIKING.



MATCH SUPPLY TO DEMAND LIKE NEVER BEFORE WITH OUR
ZERO DISTANCE SOLUTIONS FOR BIG DATA ANALYTICS.

T-Systems



LOOK OUT TODAY, SO YOU DON'T LOSE OUT TOMORROW.



The focus of the German government's upcoming IT summit is on national affairs. But its central issues – smart networks, Industry 4.0 and big data – address a broader question: what must European businesses do to ensure Silicon Valley and the Far East do not monopolize new digital business models and leave Europe trailing behind?

According to the Fraunhofer Institute, the economic benefit of developing smart networks for energy, traffic, healthcare, education and local government could be as high as 336 billion euros between now and 2022. And that's just in Germany. In Europe as a whole, we're talking potential growth and efficiency gains in the trillions. But the emphasis is on "potential". How can we make it a reality? And what must CIOs do to prepare their IT infrastructures for this new era?

Our economy faces an industrial revolution of a scale and scope unseen for many decades. And enterprises must evolve and adapt accordingly – by overhauling their organizational structures, processes and IT. And if it impacts our customers, it impacts service providers like ourselves. New technologies are driving a radical shake-up of business and industry – which means that at T-Systems, we must also digitize our business models.

For example, we're developing new resources to help you master the connectivity challenges posed by the Internet of Things, machine-to-machine communications and Industry 4.0. The intelligent integration of

data flows is key to enhancing efficiency, exploiting new opportunities and sharpening competitive edge (both yours and ours).

However, our increasingly hyper-connected world is creating new and significant cyber security vulnerabilities – both in companies and within critical public infrastructure. Data privacy and IT security are becoming essential elements of Industry 4.0, especially when it comes to defining cross-industry standards, for example for interoperability. European enterprises have the opportunity to embed security in digital systems from the get-go. This is the only way we can be sure data will not be misused. We're incorporating security mechanisms into our business processes – enhancing transparency, building trust, and fostering digital self-determination.

Europe's approach has given us a huge head start. We are credible because we don't reduce customers and their data to mere commodities. This is the only way we can fully exploit the potential of the digital age – the strengths of cloud computing, mobile connectivity and big data. Otherwise we risk alienating the key players in any value chain – the customers. If we can hold on to this advantage, then we will be able to prove our prowess in the increasingly digital business world of tomorrow, and keep pace with the USA and Asia.

Best regards,
Reinhard Clemens



Photos: Studio Tomas Saraceno, cc2013; Jakob Studnari/WAZ FotoPool

SUSPENDED CITY.
TOMÁS SARACENO
DESIGNS INTELLIGENT
WEB-LIKE STRUCTURES
AS THE FOUNDATION OF
HIS FLOATING CITIES.
HIGH ABOVE THE GROUND,
VISITORS TO HIS EXHIBI-
TION DISCOVER A WHOLE
NEW DIMENSION OF
COMMUNICATION WHERE
WORDS ARE REPLACED
BY VIBRATIONS.



Large transparent spheres are suspended like clouds below the glass dome of Düsseldorf's K21 Staendehaus, part of the Kunstsammlung Nordrhein-Westfalen gallery. They are connected by nets that visitors walk around. Every time someone moves, everyone else feels it. Even emotions seem to trigger vibrations. Saraceno has analyzed the way different species of spider construct their webs, and in his installation "in orbit" aims to draw attention to smart web-like structures and give emotions a physical dimension.



VIRTUAL PRODUCTION.
IN A TOWN NEAR LONDON,
AN AUSTRIAN BULL IS
GETTING READY TO
CHARGE. LARGER THAN
LIFE, THE IMAGE ADORNS
THE ENTRANCE TO THE
INFINITI RED BULL
FORMULA 1 RACING TEAM'S
SITE IN MILTON KEYNES.
INSIDE, 600 EMPLOYEES
ARE WORKING FLAT
OUT – WITH ONE AIM: TO
DEFEND THE WORLD TITLE.
AND SOFTWARE FROM
GERMANY IS HELPING
ACHIEVE THAT VERY GOAL.

This car factory is not like any other. The spacious white halls are a dream come true for engineers. Just five vehicles a year are produced here. But every racing season, thousands of adjustments are made to each one. The aerodynamics are tailored to the track, designs are tweaked – all with pinpoint precision and at maximum speed. Behind it all is product lifecycle management software from Siemens. This simulates production and creates efficient, economical workflows. Machines are constantly reprogrammed to produce different parts. Motor racing calls for utmost flexibility and is a fascinating example of how digitization is shaping intelligent production processes.

SMART STREETS.

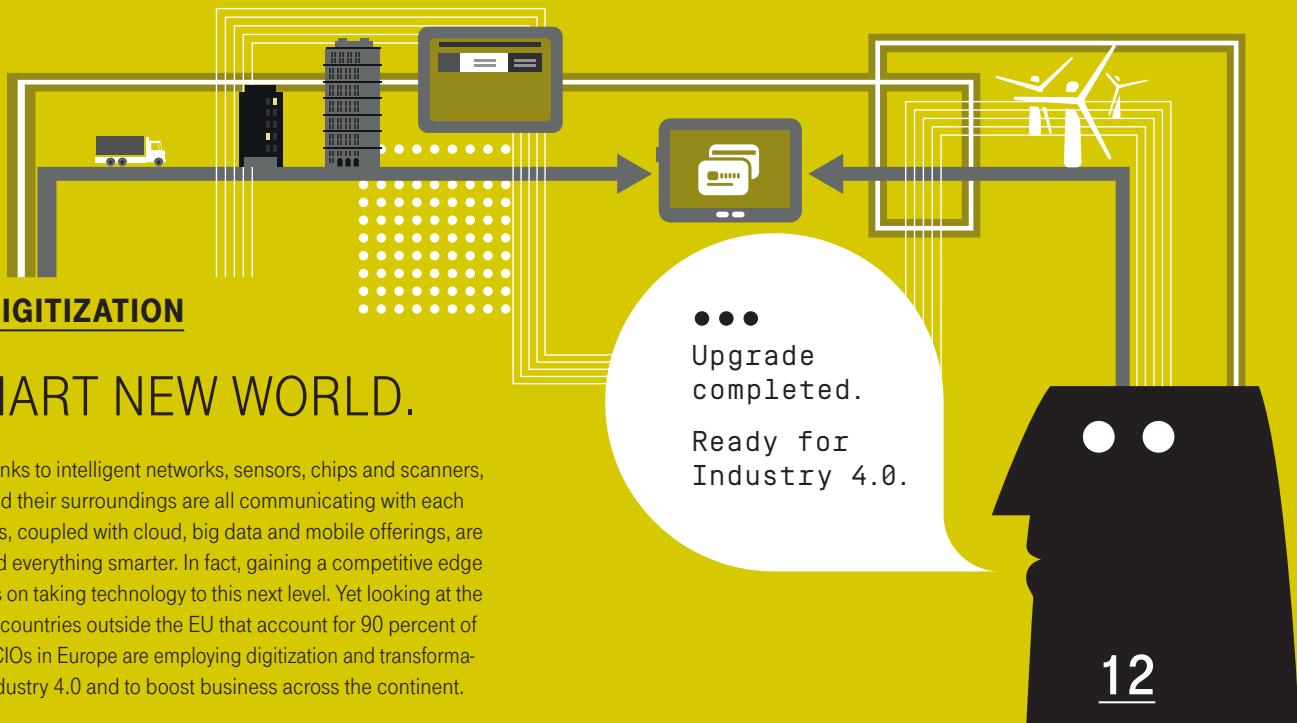
CARS ARE CONSTANTLY
EVOLVING – BUT WHY
NOT THE STREETS
THEY TRAVEL ON?

A COUPLE FROM
IDAHO HAS DEVELOPED
A SOLAR STREET
AND DREAMS OF
A DAY WHEN HIGHWAYS
WILL GENERATE
ELECTRICITY.



Several years ago, psychotherapist Julie Brusaw had the idea to pave streets with solar cells and light diodes. Since then, she and her husband Scott, an electrical engineer, have been working on putting her brainwave into practice. The aim is a smart street that makes electricity and warns of jams and icy conditions. The power generated would be used in charging stations for e-vehicles and to power homes and businesses. Pilots are already in planning in the USA.





12 A SMART NEW WORLD.

CONNECTIVITY. Thanks to intelligent networks, sensors, chips and scanners, people, machines and their surroundings are all communicating with each other. These solutions, coupled with cloud, big data and mobile offerings, are making everyone and everything smarter. In fact, gaining a competitive edge increasingly depends on taking technology to this next level. Yet looking at the global economy, it is countries outside the EU that account for 90 percent of growth. We see how CIOs in Europe are employing digitization and transformation to prepare for Industry 4.0 and to boost business across the continent.

19 INTEGRATED BUSINESS.

ANALYZE IT. The fourth industrial revolution, explains Experton executive Andreas Zilch, will transform company/customer relationships. And if IT is to enable zero distance, it needs to pick up the pace.

20 MARKET BAROMETER.

TREND WATCH. Intelligent production solutions and smart connectivity are drawing people, machines, systems, and resources into a single network. But what are businesses doing to keep up? Facts and figures on digitization.

22 CIO TALK AT NOKIA.

CUSTOMERS FIRST. Dr. Manfred Immitzer, CIO of Nokia's Networks division, on the role of IT in enterprise transformation, the appeal of achieving zero distance to the customer, and ensuring zero outages as standard.



26 DIVERSE NEW ROLES.

PIONEER. For Jim Hagemann Snabe, one thing is sure: Industry 4.0 is going to turn one industry after the next upside down. And this is precisely why the former SAP co-CEO is diversifying. In the future, he will be working with multiple enterprises, from Siemens to Danske Bank and Bang&Olufsen, helping them to survive and thrive in today's connected digital economy.

28 BUDDING BRILLIANCE.

GAME CHANGERS. Their fresh new ideas are smart, simple, and in sync with their customers' needs. And their business models are almost too hot to handle. We look at three ventures offering a range of services with an innovative twist: from online shopping, to heating, to carsharing.

32 FULL FREEDOM.

CLOUD BROKER. Today, nothing is set in stone. In keeping with this trend, this highly secure web portal enables users to flexibly purchase, manage and automatically scale public, private and hybrid cloud services, and transfer them between IaaS providers – between T-Systems, Amazon, Windows Azure and on-premises environments, based on HP, VMware or Eucalyptus.

34 ALL ABOARD.

PEER-TO-PEER. 30 international CIOs, two dozen industries and a scale of one to five. As they toured Germany by train, Horst Ellermann, Editor-in-Chief of CIO Magazine, asked one IT expert after the next the same burning question: how digital is your enterprise?

38 CLEAR DEFINITION.

GUEST BOOK. Prof. Detlef Zühlke from the German Research Center for Artificial Intelligence explains why, in his view, people will remain in control of manufacturing processes – "even in the age of Industry 4.0".

China's drivers have an 'always-on' mentality. And as Luz Mauch, Senior Vice President of T-Systems' Automotive Division, explains, this provides an excellent opportunity for OEMs to communicate with them.



40 ZERO DISTANCE IN CHINA.

AUTOMOTIVE. Whether they're buying cars via cell phones, tracking down their vehicles using an app, or resting one of their three smartphones in the holders next to the driver's seat – the Chinese are 'always-on'. This is one market crying out for inventive solutions. And it's time for German OEMs to step up.

BEST PRACTICES

44 THE CLOUD BOOST.

EPCOS. The global supplier of electronic components chose to migrate its ERP system to the cloud, reducing costs for basic operations by over 20 percent. And thanks to SAP application management, performance levels, user numbers, functionality and services can be modified in line with needs.

46 DYNAMIC WORKPLACE.

DESKTOP VIRTUALIZATION. In 2013, 46 percent of German IT decision makers named virtual desktops a key target for investment. Enabled by the cloud, these solutions allow employees to access their applications, data and documents via a web browser, at any time, in any place, and from any device.

49 A HANDY HELPER.

SEARCH ENGINE. Following Microsoft and SAP's lead, T-Systems has opted to collaborate with Google – implementing Google Search Appliance for corporate customers. The browser-based solution trawls through information in a structured way, across all internal storage systems, without connecting to its US-based manufacturer.

50 FIREWALLS FIRST.

FEDERAL PRINTING OFFICE. These days, hackers almost seem to carry out DDoS attacks for fun, with numbers rising by 30 percent in 2013. To protect its web service for passport and ID card applications, Germany's Federal Printing Office is collaborating with Deutsche Telekom's Cyber Defense Center.

53 NEWS.

Eurowings gains a new VPN... Bavarian police leverage an IT-supported evidence management solution... User departments hook up to T-Systems' App Fabric using vCloud infrastructure... Government research project Tresor connects hospitals, doctors and labs... Linde Material Handling deploys Arrival Control, enabling customers to track service engineers' ETAs down to the minute... Daimler awards a billion-euro systems integration contract...

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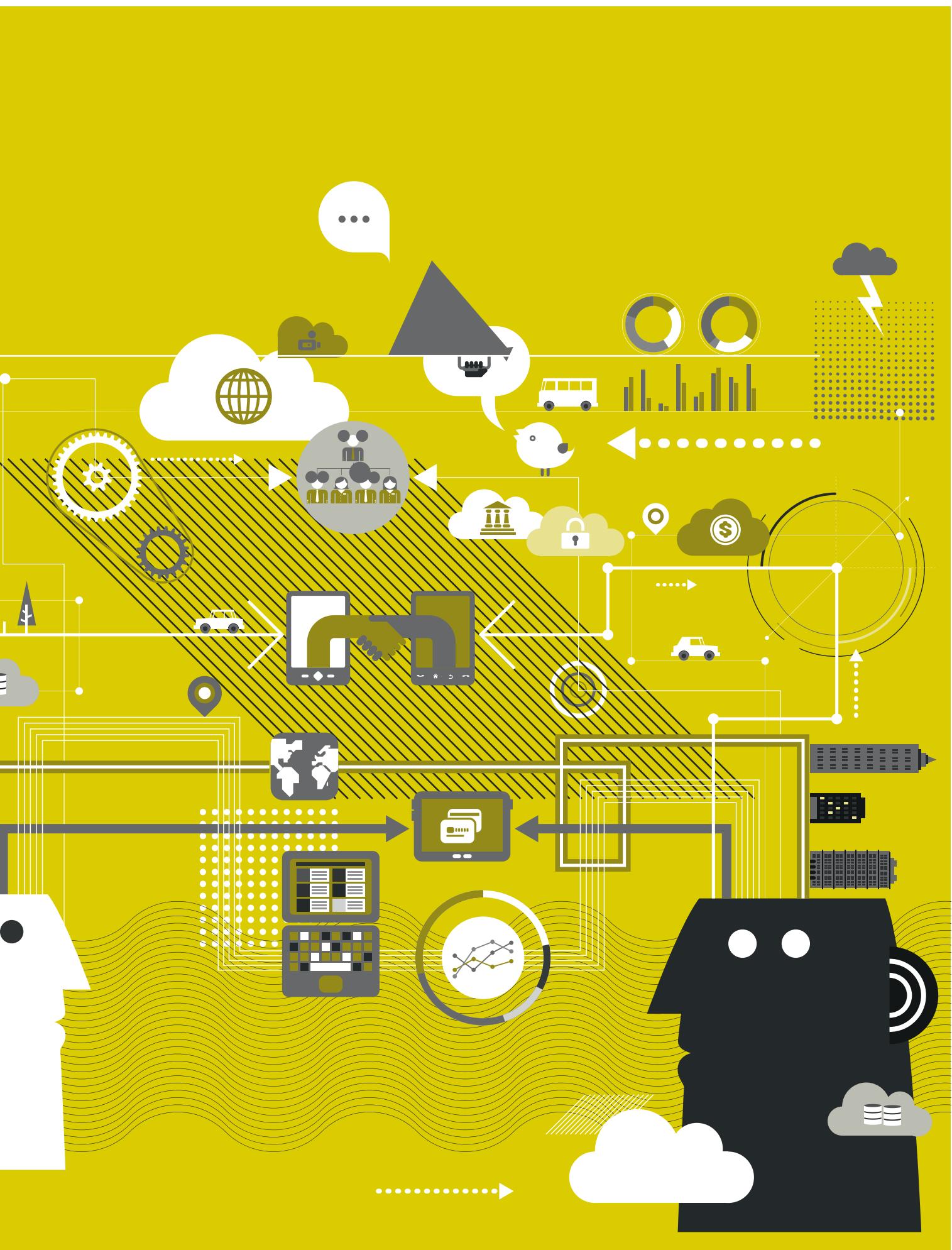
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“What did that machine say again?”



INDUSTRY 4.0 IS ON ITS WAY. THIS PIONEERING GERMAN GOVERNMENT INITIATIVE IS SET TO TRANSFORM MANUFACTURING. THANKS TO NEW SOFTWARE AND ENHANCED CONNECTIVITY, EVERYONE AND EVERYTHING IS BECOMING FASTER AND MORE INTELLIGENT. YET WHEN MACHINES SUDDENLY START COMMUNICATING WITH THEIR SURROUNDINGS, MANY ENTERPRISES DON'T KNOW WHAT HAS HIT THEM. THEY NEED THEIR CIOS TO HELP THEM MAKE SENSE OF THIS NEW WORLD; TO DRIVE DIGITIZATION AND TRANSFORMATION, AND TAKE THEIR ENTERPRISE BRAINWARE TO THE NEXT LEVEL.





01 THE SMART REVOLUTION.

<Copy> Michael Hobb-Thiem

CHANCELLOR ANGELA MERKEL DID NOT MINCE HER WORDS. Under no circumstances must Europe let the fourth industrial revolution – the digital revolution – pass it by. It's not enough for “the German economy to get a move on,” she recently declared, reading CEOs the riot act and spurring them on toward “greater innovation.” After all, she warned, countries beyond the EU’s borders account for 90 percent of global economic growth. Deutsche Telekom’s CEO Timotheus Höttges put it even more bluntly. He warned of a “digital disaster” should Europe fail to drive forward digitization. Miss the boat, he stated, and the continent would find itself heading back to Industry 0.0 rather than advancing to Industry 4.0.

There is good reason for a sense of urgency: the majority of European businesses are headed up by people who were educated in the 20th century. Most of these enterprises were founded many decades ago. And their bosses’ expertise lies in manufacturing and continuously improving physical products for the global market, a philosophy that proved highly successful for multiple generations. But that is not the way of the digital, connected economy: it is much faster-moving, more chaotic, and harder to predict. What’s more, it has a much sharper focus on the consumer than was feasible (or desirable) for the old guard.

BREAKING WITH THE OLD, BRINGING IN THE NEW

New players are changing the rules of the game – with their disruptive cloud, mobile, and big data technologies, and their unrelenting stream of new applications. Their digital business models are turning entire markets on their heads. And to top it all, their founders are young enough to be the grandchildren of the incumbents’ CEOs. So what can the old learn from the new? That game changers are masters in customer centricity and pacesetters when it comes to time-to-market.

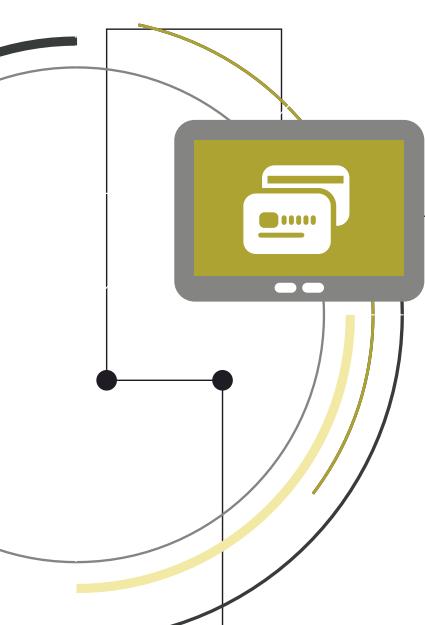
To keep up with this turbocharged transformation, entire industries will have to overhaul their IT. Why? Because enterprises from diverse sectors are joining forces to combine their products and services, offering the best of all worlds. Arrival Control is a case in point. This business app from Deutsche Telekom connects the customer to the manufacturer, the freight forwarder, the insurance company, and the consignment itself. As a result, the recipient can rest assured that critical components will arrive on time.

Sometimes, a single smart app is all it takes to secure a startup’s success. To first make the top dogs sit up and look, and then to threaten their position on the throne. These are apps quickly developed by inventive individuals, and often delivered via the cloud. “The rise of software is not simply a bubble that will soon burst. It represents a fundamental paradigm shift in the economy,” explains Ben Horowitz. Born in the UK, Horowitz has helped to finance and launch multiple companies, from Facebook to Twitter and Airbnb – a series of success stories from Silicon Valley.

SOCIAL MEDIA MEETS THE NEW INDUSTRIAL REVOLUTION

What is the link between social media and Industry 4.0? For some time now, social media has been employed to raise the intelligence of manufacturing processes. Take Twitter, for example: Schildknecht, a specialist in industrial electronics from south-west Germany, leverages the microblogging service to enhance its man-to-machine communications. The employees operating equipment – from small individual devices to entire production lines – are all active followers of a public or private group where Tweets are read and managed via smartphone, tablet, or desktop PC. If a machine issues a message about an error or defect, for example, users can send back a Tweet to re-set it. “In a professional context, Twitter offers ten times the possibilities of text messages, as well as being secure and requiring significantly less administrative effort,” explains company founder Thomas Schildknecht. To deploy the application on a large scale, all you need is reliable, secure, end-to-end connectivity.

As Hagen Rickmann puts it, “The IT industry is the primary instigator of the next technological revolution – set to radically shake up manufacturing the world over. The way that factories and value chains are organized and managed will transform as customers become connected to production, and machines to one another.” Director of Sales at T-Systems, Rickmann also represents Deutsche Telekom within a group of German executives backing Industry 4.0.



DIGITIZATION MEANS COLLABORATION

Industry 4.0 will transform competition and models for collaboration between industries previously worlds apart. Google, for example, always has new territory in its sights. Its acquisition of Nest – a manufacturer of smart heating control systems – has enabled it to break into a market traditionally dominated by conventional home automation specialists. The California-based enterprise is also taking on medical equipment makers by providing contact lenses that measure blood sugar levels in diabetics' tears and connect wirelessly to smartphones. German energy enterprise RWE also recently went down the collaboration route – partnering with Nest to ensure it didn't get caught on the back foot on smart energy control.

But if the Internet of Things means that chips and sensors are doing the talking and listening, and “enabling entire factories to speak,” as German newspaper FAZ put it, one question remains: where is all this information going? For CIOs, Industry 4.0 means much more than protecting files and data: they need to safeguard entire software-controlled process chains. Especially in light of security vulnerabilities, and scandals such as those that engulfed the NSA, shaking people's confidence in the digital revolution. In fact, cyber attacks are already the fourth most common form of industrial crime worldwide.

“If people lose faith in the security of digital communication then we will have lost every opportunity that a connected world affords,” states Reinhard Clemens, CEO of T-Systems. And that's true at both ends of the IT value chain: “If consumers are constantly worried that a few major corporations are pulling their strings, they will keep their distance. And if companies are constantly fighting intellectual property theft,” Clemens continues, “they will, in the long run, find themselves looking on as their ability to create and innovate ebbs away.”

SECURITY NEEDS EUROPE, AND EUROPE NEEDS SECURITY

For Europe, the greatest opportunity lies in making security a fundamental aspect of the digital revolution; in differentiating itself accordingly on the global market, and employing an aggressive marketing strategy. “This is a critical issue for C-level executives,” states Clemens. “Cyber security and data protection must be core components of enterprises’ risk management. After all, they are areas that credit rating agencies will take a good look at when assessing their financial health.”

But to what extent are Europe’s businesses already digitizing and transforming, and how far have they come on their journey toward Industry 4.0? This was the question put to 30 international IT executives at a CIO.move event held as part of this year’s CeBIT. Find out what some of them had to say on page 34. How do they see the relationship between global digital titans and European manufacturers evolving – in light of growing customer centricity and the need to quickly recognize and respond to market needs? One C-level executive from a market leader responded with the following comparison: at least his company had made greater inroads into the world of software than Google had into the world of hardware... He makes a good point. But will it be enough?

We reveal how companies are getting ready for Industry 4.0 and future developments in their industries and markets – through smart connectivity, digitization, and the transformation of IT from the ground up. We find out what this means in real-life terms – at automotive giant Daimler, at building materials manufacturer Wienerberger, at universities, hospitals, and in the public sector.



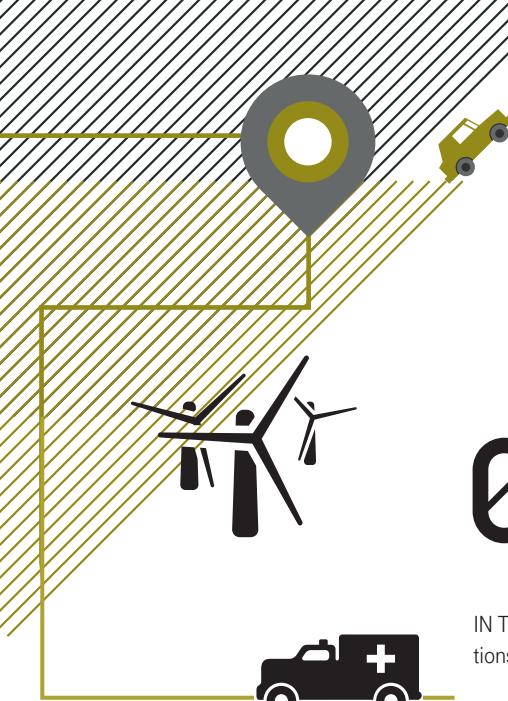
“The way that factories and value chains are organized and managed will transform as customers become connected to production, and machines to one another.”

Hagen Rickmann,
Director of Sales at T-Systems

Did you know?

11 good reasons to transform your IT

1. **Lower investment risk** – Increased adoption of cloud services is converting capex into opex
2. **Greater added value** – The IT department no longer just provides a service – it is a business enabler
3. **Ease of use** – Standardization and automation reduce IT administrative effort
4. **Greater transparency** – Industry 4.0 ensures that manufacturing is enhanced, integrated, and customized, and leads to enterprise-wide transparency
5. **Application-specific scalability** – Bandwidths can be assigned to specific applications using software defined networks (SDN) on the basis of actual demand
6. **More flexible business models** – Digitization supports increased variety and more flexible business models
7. **Increased efficiency** – Resources and energy are consumed in line with actual requirements
8. **Simplified integration** – Standardized IT platforms simplify integration of new (cloud) services and functions
9. **Faster, enhanced decision-making** – Real-time information allows businesses to identify and monitor trends, and ensures faster, better decisions
10. **Increased security** – Strict security standards at all levels protect the growing volume of data
11. **Increased shareholder value** – Digital businesses can increase their agility and productivity by up to 30 percent – improving shareholder value



02

SMART AND WELL CONNECTED.

<Copy> Roger Homrich

IN THE PAST, THEY WERE PRETTY DUMB, but they still managed to transmit data from A to B. Telecommunications networks today, however, are intelligent and able to think for themselves.

Consumers want their favorite combinations of products and services to be available instantly, and pretty much everywhere. This is driving radical change to business models. To deliver the degree of customer centricity now expected, enterprises must collaborate within and beyond the boundaries of their industry, continually refine their offerings and, first and foremost, transform their IT – because today's and tomorrow's products are based on totally digitized infrastructures and smart networks.

A study by BITKOM, Germany's leading ICT industry association, and the Fraunhofer Institute for Systems and Innovation Research (ISI) put the potential value of the country's market for smart networks at just under 56 billion euros per year. The authors believe that these networks will generate efficiency and greater economic growth, particularly in the energy industry, healthcare, transportation, education and the public sector. They will capture and aggregate data from multiple sources and channels, including sensors and actuators, storing them on central platforms to be processed in diverse ways. A variety of players, such as utilities, automakers and government agencies, will collaborate and leverage these platforms in order to develop and deliver entirely new services. Cross-industry partnerships of this kind are springing up everywhere – with T-Systems making a key contribution as an enabler.



"By transforming Deutsche Telekom's IT, we are enabling new business models. Broadband network expansion, the separation of cables and services, and switching over to IP are all ways in which we are ensuring rapid delivery and customer centricity."

Markus Müller,
CIO of Deutsche Telekom

SAVED BY THE SMARTPHONE

The rural north of the German state of Brandenburg lacks infrastructure, especially in healthcare. There are not enough physicians, and any journey to the hospital is usually a long one. At the same time, the average age of the population is on the rise, and predicted to soon hit 53. This combination is having fatal consequences – literally. Mortality rates are already higher than in the rest of Germany. In fact, Brandenburg's residents are 40 percent more likely to die from an existing cardiovascular condition than the average German.

The Fontane project, launched four years ago, is a telemedicine solution designed to address this challenge. During a clinical study, 750 high-risk patients monitored their own vital parameters – such as heart rate, weight, and blood pressure – and transmitted them to their electronic patient record via the mobile phone network. Doctors in the telemedicine center of Charité Hospital in Berlin analyze the data each day. If they detect any significant changes, they alert the patient, and arrange a face-to-face consultation with their personal physician and cardiologist. "In ten years' time, this will be standard medical practice," states Professor Friedrich Köhler, project leader and cardiologist at Charité. "Telemedicine will no longer be a topic of conversation, in the same way no one now remarks on the fact that we use computers."

A WORLD WHERE CARS COMMUNICATE

Technologies that are leading-edge today will soon become commoditized. The next generation of automobile owners is speeding towards the era of the connected car – and quickly, judging by the number of exhibits dedicated to this topic at the Geneva Motor Show in March. On the eve of this premier auto-industry event, Daimler CEO Dieter Zetsche gave a presentation that highlighted the online 'Mercedes me' platform. Zetsche described a future when cars will be connected to "a cloud comprising seamlessly integrated services," and Daimler customers will be able to access all online services via a single portal.

But what might these services be? The simTD project field-tested 120 connected cars to find out. The vehicles participating in this large-scale pilot project exchanged information in real time, both with one another and with infrastructure, such as traffic lights and other forms of signage – under real-life conditions, on public roads. Dr. Christian Weiss, project coordinator at Daimler, summarizes the key finding: "Because the vehicles are able to recognize hazards and pass this information on to others, car-to-x communication can prevent accidents."

Drivers, and even the cars themselves, can respond more quickly if they can share information – alerting them, for example, to an obstacle behind the next bend or a traffic jam obscured by a hill. The project also demonstrated that car-to-x connectivity could cut accident-related costs by up to 6.5 billion euros annually if all vehicles in Germany were fitted with simTD technology. Improved traffic flow and lower pollution could potentially deliver further savings of 4.9 billion euros.

A CITIZEN-FRIENDLY ONLINE MARKETPLACE

goBerlin is developing a cloud marketplace that hosts both public and private sector offerings. The goal is to enable inhabitants of Germany's capital city to find and access online services via a single central portal, for greater convenience and speed. Moreover, local government agencies can leverage the infrastructure to develop and provision entirely new applications and services. Citizens can even apply for a new ID card via goBerlin, in a process that includes reliable authentication of the applicant's identity. Other options include registering a new address, viewing apartment-to-rent listings, taking out insurance, and finding tradespeople. Secure online payment is also supported.

A UNIVERSITY EDUCATION FOR EVERYONE

iversity.org, a virtual university, launched in late 2013, makes online learning simple and accessible. T-Venture, a Deutsche Telekom subsidiary, provided funding for iversity, which was founded to provide massive open online courses (MOOCs). That's not to say that the only materials available are videos of lectures. Study resources are divided into manageable modules ideal for online learning, and student progress is monitored through regular testing. There are currently 400,000 registered users, and the aim is to attract a total of one million, and to create approximately 100 courses, by the end of 2014.

Co-founder and Managing Director Hannes Klöpper is convinced that "open online courses are as important and revolutionary for the future of higher education in Germany and Europe as they are in the USA." Across the Atlantic, elite universities such as Harvard and MIT are already heavily involved in MOOC. "This means that students all over the world have access to higher education – even if they can't go to a physical university. We aren't aiming to replace traditional higher education – just to complement and strengthen it," explains Klöpper.

03 A LEADER, NOT A FOLLOWER. THE WIENERBERGER STORY.

<Copy> Thomas van Zutphen

WIENERBERGER HAD CONCLUDED ITS PHASE OF STRATEGIC GROWTH. Now it was time for a new venture: global IT transformation. The project began with a major clean-up operation, and continued down a structured path designed to bring the IT department and the business closer together.

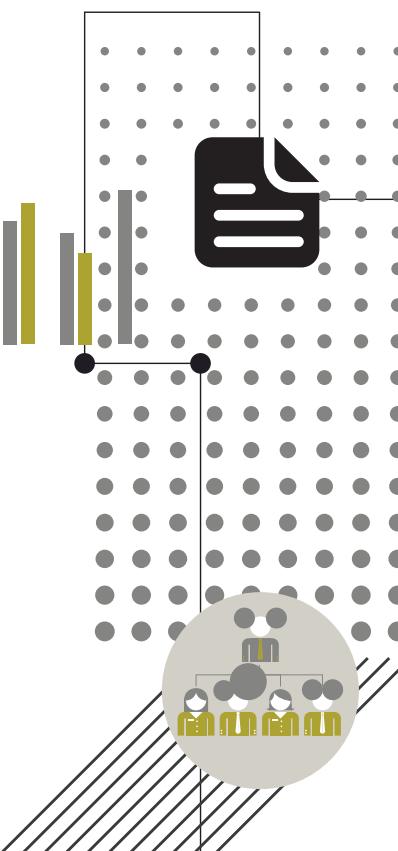
When Austrian building materials manufacturer Wienerberger decided to shift its business focus from rapid expansion to organic growth, one thing was clear: "Our IT needed a complete overhaul," explains Hans Ebner, Head of IT Architecture and Organization.

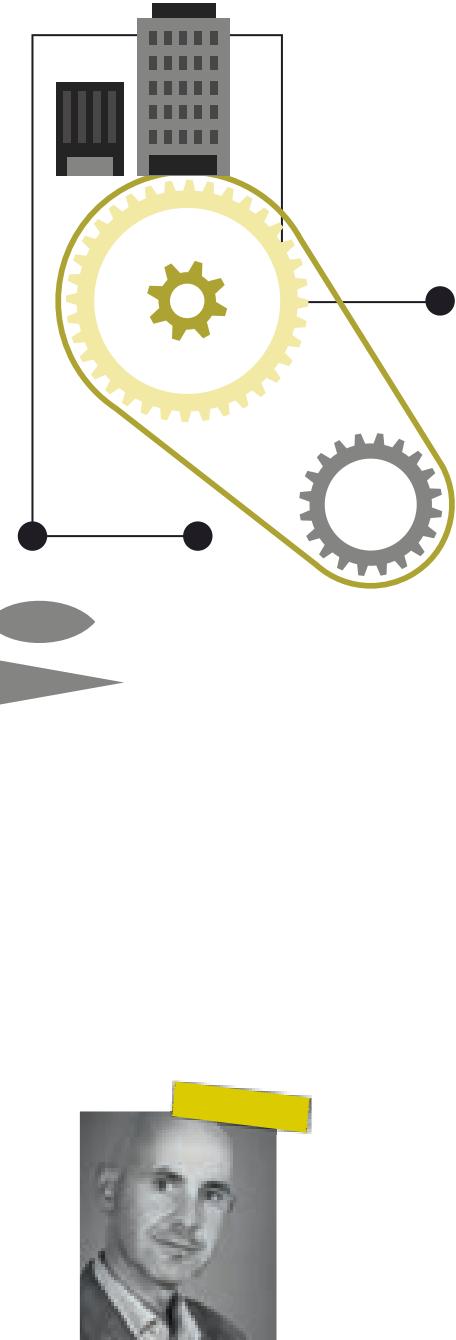
In just 20 years, the enterprise had evolved from mid-market player into the European leader for roof tiles, and the world's No.1 for bricks – with 14,000 employees, and 214 factories in 30 countries. This expansion at break-neck speed had left the IT department lagging behind. Ebner explains: "We had a lot of catching up to do. We used to be seen as a cost center, then as a service delivery unit, and now our mission is to be a business enabler – but we're only half way there."

Wienerberger's IT is a three-fold operation. "There's a central IT department, a team responsible for our business units, and an IT crew for each of the 30 countries we operate in," Ebner elaborates. This is the stuff of CIOs' worst nightmares. Employees at headquarters in Vienna lack visibility. They have colleagues in Slovenia, Canada, and India, to mention just three nations. But they don't know which data their overseas counterparts can access, or which applications and infrastructures they use. For decades, the central IT department's time was eaten up by the consequences of business change: the integration of a series of acquisitions, the work required to give subsidiaries access to Dynamic Services for SAP, and the carve-out of individual companies and sites as a result of consolidation.

TO BE A BUSINESS ENABLER, ICT MUST BE TRANSPARENT AND CLEARLY STRUCTURED

As Ebner reports, Wienerberger's IT transformation project "started with the very basics", and followed a clear game plan – an essential requirement, not least because the company had been structured into business units





early the previous year. "First off, we had to improve the transparency and shape of our IT so that our internal customers would see us as a single, united organization. After restructuring, we harmonized our purchased systems and aligned them more closely with the business," Ebner relates. "To make that possible, we needed to implement digital transformation from the bottom up. That is the only way to bring our IT closer to the people who need it most: our internal customers. In a second step, we can then work with the business units to ensure that our IT better supports our external customers, with the aim of being more responsive to local business cycles and seasonal fluctuations in the building industry."

Ebner has drawn up a to-do list for the transformation project, comprising four steps toward faster business processes: 1. Standardization of the global network, 2. Consolidation of the data center landscape, 3. Consolidation of applications, 4. Implementation of dynamic workplace services.

One task will be to introduce MPLS. "We need an end-to-end network infrastructure that allows us to rapidly roll out new applications," explains Ebner. That applies to anything from a new CRM solution to video conferencing software designed to cut costs and enhance communications between business units and departments.

Wienerberger has contracted T-Systems to set up the network by the end of 2015 as part of the Stratos project. T-Systems has been operating Wienerberger's SAP landscape since 2006, and was named strategic partner in 2013. The aim of Stratos is to increase productivity and transparency, cut costs and improve network management. "Having a global, monitored network for all of our 214 sites is critical to our business," states Ebner. In Germany alone, there are four separate IT landscapes, each with its own network and operator. And the situation is similarly complicated worldwide. As a result, dozens of IT professionals are employed simply to manage contracts for network services.

STREAMLINING NETWORKS, DATA CENTERS, AND APPLICATIONS

"Before issuing a request for proposals in 2015 for the consolidation of data centers, we first needed a clear picture of what we already had in place," explains Ebner. Following the acquisition of Pipelife, an international manufacturer of pipe systems, Wienerberger had two large data centers in Vienna plus around 60 smaller server rooms in Europe alone. "We want to award the contract in the very near future. Our hope is that we will ultimately have just one data center, or only one per country or region, by late 2017," comments Ebner. Wienerberger has already begun switching from housed solutions it operates itself to managed services from the cloud for many applications – including its core SAP systems (such as SAP HANA). Operation of the content management system (CMS) and SharePoint has also been transferred to T-Systems. "Anything that has become a commodity can easily be outsourced," explains the IT boss. "My job is to make the IT department service-oriented rather than infrastructure-oriented." Or in other words: "We don't want our IT to be driven simply by quality issues, but by business imperatives. And that means being a leader and not a follower." The priority for the IT department is to work hand-in-glove with the business units – whether that be manufacturing, R&D, marketing or sales. "We will then be able to identify the products and services that really help the user departments much more quickly," emphasizes Ebner. The result could be a new sales model, an innovative approach to marketing or a more efficient method of managing logistics.

Thanks to the T-Systems vCloud, Wienerberger can ramp up additional resources at short notice – for SAP print servers, for example, or for a new treasury application that monitors fluctuations in currencies and interest rates on global markets. However, other challenges cannot be mastered quite so easily.

Against this backdrop, Wienerberger's Head of IT is already making plans for new mid-term projects, despite the demands consolidation already makes on his time. He is looking at ways to improve mobile device management, for example, in order to raise productivity, particularly within the sales organization.

"Transformation and process digitization are not one-time tasks," explains Ebner. "Technology is evolving all the time; just consider the impact and opportunities of social media and big data, for example. So it's clear that IT change is an ongoing challenge." Moreover, Ebner is well aware that transformation tends to have a domino effect. "Once you start cutting back your applications, consolidating your data centers by concentrating on a single provider, you also have to keep an eye on MDM and your workplace services." What data and files are needed? What about SAP and Microsoft Exchange? And what about Internet access? "Quite apart from implementing robust security mechanisms, the provider must have the skills to manage transformation; across the whole business from sales to delivery, within the agreed timeframe." And at some point Wienerberger will tackle the next hot topic: big data analytics. The company is already very well equipped to crunch structured data using SAP HANA. But at this moment in time, unstructured data is "simply not a priority" for Hans Ebner. "If I don't even know where my data is within our data centers, I certainly don't need to be worrying about how I'm going to analyze it," he adds bluntly. But in light of the need for IT to continuously evolve, Ebner is prompted to laugh. He concludes: "I don't think we'll ever be truly finished. Because every end is a new beginning."

"Transformation and process digitization are not one-time tasks. IT change is an ongoing challenge."

Hans Ebner
CIO of Wienerberger



“GERMANY’S INDUSTRY 4.0 INITIATIVE DEPENDS ON BUSINESS PROCESS INTEGRATION – AND THAT REQUIRES THE RIGHT ICT ARCHITECTURE.”

«Copy» Thomas van Zutphen

Mr. Zilch, most enterprises view Industry 4.0 as something between an absolute nightmare and a gold rush. But what's this hot topic all about?

The fourth industrial revolution will radically alter the relationship between companies and their customers – and ultimately lead to zero distance, as enabled by T-Systems. These changes will turn markets on their heads and increase competition. If companies want to get on board, they will have to be extremely vigilant about keeping their IT up to speed. In manufacturing, it's about physical integration – of smart factories, plug & produce concepts, and adaptive production. But it's also about the integration of business processes. This will call for a tighter connection between IT and manufacturing and involve two giant “stovepipes”: the IT experts and the engineers – who will need to collaborate closely.

So what exactly needs to change?

Manufacturers are already well on their way to Industry 4.0 – with flexible, highly automated production and efforts to achieve a batch size of one unit. Another concrete example is insight from production being fed back into upstream processes. But end-to-end integration and automated feedback from individual organizational units are still lacking here – and IT needs to listen up. From R&D to testing, production preparation, quality control, support and maintenance, through to the entire supply chain, including suppliers, customers, and partners, there is a great deal of work still to do and vast untapped potential. IT can and should play a central role. One of the current problems is that there's a lot of hype surrounding Industry 4.0 and many IT providers have simply jumped on the bandwagon without in-depth expertise. What we really need is high quality.

Who will be able to close this gap?

Providers like T-Systems, with strong IT and telecommunications skills, are in particular demand. It is their networks and broad skills that deliver the level of integration our business processes need. Of course, Industry 4.0 is primarily a business topic – but it's the IT that makes it possible. If we look at it from a macroeconomic point of view, Industry 4.0 is extremely important to Germany and its competitiveness on a global stage. It's no longer about introducing a few mobile devices, it's about ensuring reliable monitoring and automation of mobile systems in the long term through business process integration. It might sound relatively straightforward, but not many companies have managed to put it into practice. There is still a long way to go. Or to put it another way, now is the time for models like 'Real ICT' to come into their own: because this is not just important; it's business-critical.

Which technologies are needed?

Mobility, the cloud and big data each have a large impact on Industry 4.0. They play a key role in each of the seven technology layers that enterprises and service providers need to identify and support. We have defined these as business processes, applications, IT services, the network,

the operating system, CPUs – the processor logic – and the smart sensors right at the bottom of the stack. And companies need end-to-end skills in all of these disciplines.

Take the switches in the network layer, for example. In the future, these will do more than simply forward data: they will filter it, using Hadoop technologies, or similar. It's the only way to manage such a large volume of network traffic. This is why it's so important to consider the best overall architecture and the integration of each of the layers right from the start.

To prevent IT from being a bottleneck?

Yes, exactly. But it's not only IT that can hold things back. If we spend too long debating standards – necessary as they might be – or wait until the government has put the requisite framework in place and all the legal issues have been considered several times over, then we won't move on for another 20 years. And that's time that we simply don't have.

From the customer's point of view, the biggest IT leap will be in terms of service and support – with the introduction of predictive maintenance, for example. But the vendors will really be providing the 'solutions' – and offering additional services that differentiate their products from the competition's. In this respect, T-Systems can be a true enabler and deliver all key modules from a single source.

How can we best address the issue of security and the cloud?

There's no need for private-cloud-only architectures. A combination of public and private cloud solutions is an excellent foundation for the new industrial age. In smart farming, for instance, the weather information that improves the harvesting process comes from the public cloud, but it is a T-Systems private cloud that transmits data from sensors built into the agricultural machinery.

When it comes to security, each of our seven layers requires its own concept. It would be nice to have an end-to-end tool for everything from the business processes to the sensors, but that's not going to happen in the short term. Multiple solutions – often from diverse providers – need to work together. Because ensuring the security of industrial processors and plants is a completely different kettle of fish to ensuring the security of an SAP system or a network. And it's not only the manufacturers that don't stand a chance with this task: it would overwhelm any one provider. The job calls for a central integrator that understands the most diverse security processes, as well as the products and solutions.

As analysts, all we can do as we look to the future is to send a clear message to businesses and IT departments: it's time to embrace Industry 4.0, so get on board now – because competitors around the world certainly won't be hanging around.

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<Links> www.t-systems.com/zero-distance

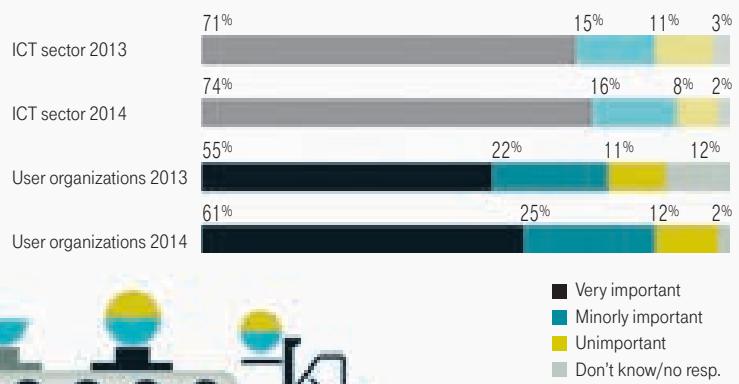
www.experton-group.com

INTELLIGENT NETWORKS INDUSTRY 4.0

Merge the Internet with sensor-actuator systems and wireless technologies, and link the physical with the virtual world to create cyber-physical systems (CPS), and what do you get? A technological revolution. Now, machines are not only controlled by human operators – they talk among themselves, too. And by 2020, the Internet of Things (IoT) will connect something like 50 billion objects. Below, analysts describe the impact of the growing digitization of businesses and processes across a variety of industries and disciplines.

THE GROWING IMPORTANCE OF INDUSTRY 4.0

How important is the German government initiative Industry 4.0 for the ICT sector and for user organizations in general?



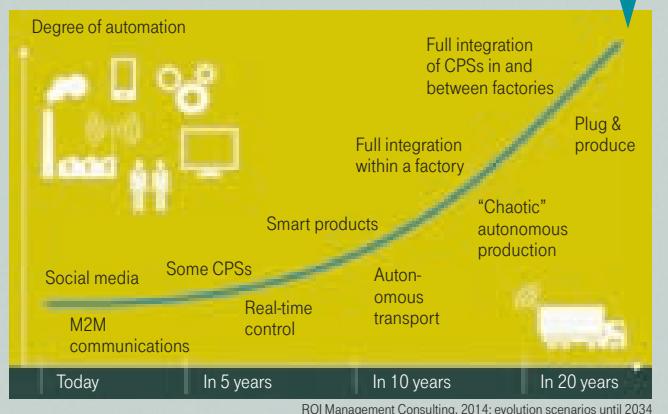
BITKOM, Aris Umfrageforschung, 2014

IMPACT ON COMPETITIVENESS

Survey of businesses: how important is Industry 4.0 for the future competitiveness of German manufacturing? (In percent)



EVOLUTION OF INDUSTRY 4.0



CRITICAL SUCCESS FACTORS FOR THE FUTURE OF MANUFACTURING

Intelligent ecosystems of partners who collaborate efficiently across organizational and national boundaries with the help of cutting-edge ICT technologies.

Data-centric product and service strategies based on **innovative applications**, social media, and cloud-based services.

Increased use of **big data technologies** as the technical basis for rapidly processing unstructured, complex and high-volume data.

THE FOUR STAGES OF INDUSTRIAL REVOLUTION

Reaching for tomorrow: from the mechanical loom, to production-line manufacturing and programmable logic controllers, to smart factories.

German Research Center for Artificial Intelligence (DFKI)

1st INDUSTRIAL REVOLUTION Late 18th century

Industry 1.0

Introduction of mechanical production facilities powered by water and steam

2nd INDUSTRIAL REVOLUTION Early 20th century

Industry 2.0

Introduction of mass production based on the division of labor and powered by electricity

3rd INDUSTRIAL REVOLUTION Early 1970s

Industry 3.0

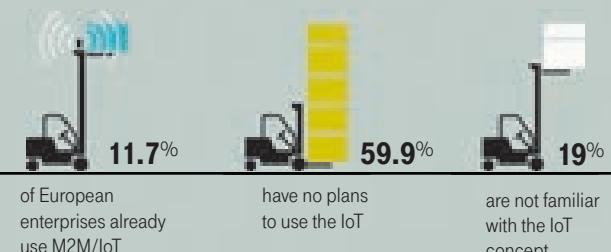
Use of electronics and IT to further automate production

4th INDUSTRIAL REVOLUTION Today

Industry 4.0

Use of cyber-physical systems

TAKE-UP OF M2M | IOT BY BUSINESSES

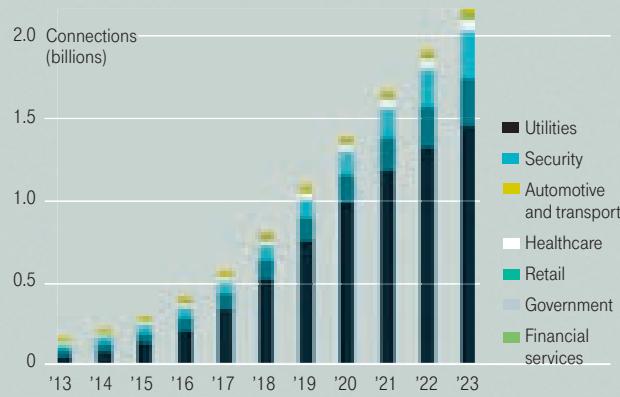


IoT: Internet of Things

IDC, European Vertical Markets Survey, 2013

THE CONNECTED WORLD

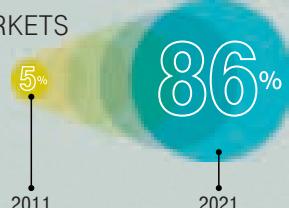
M2M connections worldwide will grow by a CAGR of 29% through 2023 to 2.2 billion.



Analysys Mason, M2M Device Connections, Revenue and ARPU: Worldwide Forecast 2011-2021, May 2014

M2M IN DEVELOPED MARKETS

Growth of M2M connections as a percentage of overall population in developed markets.



Analysys Mason, M2M Device Connections, Revenue and ARPU: Worldwide Forecast 2011-2021, May 2012

THE BENEFITS OF A SMART FACTORY

Existing users of smart factories see quality and flexibility improvements as the chief benefits. Enterprises still planning to implement connectivity are primarily looking for flexibility and revenue gains.

50%

One in two enterprises wishes to implement some elements of Industry 4.0

20%

One in five already operates a smart factory

Planners

Revenue gains

44

Quality gains

29

Productivity gains

42

Flexibility gains

60

Users

Revenue gains

19

Quality gains

52

Productivity gains

38

Flexibility gains

43

PricewaterhouseCoopers, Smart Factories, November 2013

<Contact> MI-ECM@t-systems.com

<Link> www.t-systems.com/analysts

“From service provider to business enabler.”

DR. MANFRED IMMITZER, CIO OF NOKIA'S NETWORKS DIVISION, TALKS TO T-SYSTEMS GLOBAL ACCOUNT EXECUTIVE OLIVER HERRMANN ABOUT THE ROLE OF ICT IN BUSINESS TRANSFORMATION, THE MULTIFACETED DIMENSIONS OF ZERO DISTANCE, AND ZERO OUTAGES AS A HALLMARK OF QUALITY.

<Copy> Thomas van Zutphen

Dr. Immitzer, Nokia's Networks division (formerly NSN) has undergone extensive restructuring with transformations across the business and IT – what came first?

Good question. The starting point was our overall business strategy, and this was the foundation for our IT roadmap. But in many ways, it's the IT transformation that paves the way for achieving strategic goals – by turning ideas and changing business imperatives into real-world processes, and by redefining productivity. That means IT needs to set the pace from the get-go. Because from this moment on, it begins to transcend its supporting role to perform an entirely new function as a business enabler. Going forward, it makes a crucial contribution to strategic development.

In your case, 'going forward' means you have realigned your IT to embrace the concept of zero distance to the business. You've consolidated around 100 ERP systems onto a central One SAP platform; you've cut down the

number of applications by 75 percent; slashed the number of providers by 95 percent; and opted for outsourcing, or to be more precise, for an innovative partner model, to externalize all your IT processes. Why such a radical shake-up?

The post-merger integration of Nokia and Siemens and, in a subsequent step, of Motorola Networks gave us a unique opportunity to have a thorough spring clean – in terms of applications, providers and infrastructure. To achieve this, close collaboration and effective partnership between business units were absolutely essential.

The program established to consolidate our ERP systems was given the name *Quote to Cash*. We leveraged the initiative to harmonize our processes from end to end – from the initial customer inquiry through to invoicing. Within the company, we positioned the undertaking as a unique business opportunity, not as an IT project. This kind of thing would never fly as an IT program.

Digitization

CIO Talk_Dr. Manfred Immitzer

**Résumé**

Dr. Manfred Immitzer, 49, has been CIO of Nokia's Networks division since 2006. After completing a degree in electrical engineering and a PhD in physics, he held various management roles at Siemens in Austria before becoming CEO of the company's Application Management Center for Mid-South Europe in 2003. In 2013, the Austrian national won the Global Telecom Business Innovation Award. That same year, he was named CIO of the Year by Computerwoche and CIO magazines and received the Global Exchange Award.

So you've learned that IT always needs to be a means to an end?

If you like, yes. I believe successful IT repositioning is based on three elements: a strong vision, a resilient culture of trust, and a clear signal from the CIO that underlines his willingness to implement the defined changes. Our vision in IT began with the roll-out of a new business model and introduction of next-generation IT. As soon as you make it clear internally that IT offers a whole new world of opportunity, a platform to base the entire reorganization of the business on, people start to understand what you're doing.

So we need to stay as close to the business side as possible. We need to understand the direction the company is moving in and the parameters it has defined to meet its objectives. And then we need to act fast and deliver proposals that show which routes can lead to these goals. Our role is not simply reactive; we need to be a pro-active business partner. We don't just create solutions for processes that have already been defined. Instead, we actively shape concepts and data architectures. It's a very exciting task and is excellent motivation for our team – with the clear message that this radical shift, this transformation, will turn us from a service provider into a true business enabler.

Your own resources were dramatically cut within the scope of the restructuring process. What impact has this had?

IT is always under threat of cost-cutting. And, to a certain extent, that isn't a bad thing. But this time around, it did seem to be mission impossible. The team was much smaller than before and we had a very limited budget – but were expected to achieve more. The decisive factor, though, is where exactly the cuts are made. Today, we're generating real value added for the business in areas such as process acceleration, time-to-market and asset reduction, and this is worth significantly more than the cost savings themselves. If you're looking to radically streamline your IT portfolio and make strategic decisions on where to invest your resources, it's essential to define where the company is headed and what IT mechanisms will help it reach its goals and generate value. We measure our contribution in terms of net present value, which is the same benchmark used by financial experts in other fields. If we perform well, we enable transformation, paving the way for the company vision to progress from PowerPoint presentation to day-to-day reality.

But you can't achieve all this alone. How do you go about finding the right partners who share your view of IT as a business enabler?

First, all stakeholders should be aware that in a conventional outsourcing model, there is no escaping the service provider role. So we need to ask: how can we replace this network of suppliers with an ecosystem of partners that understand us and

where our priorities work well together? They must cultivate their competitive relationships in terms of the interests and goals they share with us. This is the kind of model we have developed for applications. And now we're working on our infrastructure. We have defined a performance-related payment system where 20 percent of the annual revenues that our partners generate from us depends on whether we reach our targets. It's similar to the clauses found in top executives' employment contracts. As a result, our partners identify with our organization. They are not just tied to us by conventional SLAs. They share responsibility for the success of our corporate IT – and the corresponding SLAs cover all elements of service delivery.

How long does it take to negotiate a model like this, where your partners truly understand the customers' way of thinking?

Our shared philosophy is that everything my competitors and peers at the Nokia table do is not just of benefit to themselves and to Nokia, but to me, too. This avoids conflicts of interests among partners, and between them and us, from the get-go. But it also calls for a particular mindset. In the short term, it may sound like a greater risk, but in the long run, it creates a solid foundation for partnership and is the better option.

Tough negotiations are needed to develop the right mode of operation and governance models. At the end of the day, you need the full commitment of all partners. In return, they get to play a significant role, and heavily influence our processes and our business. That's what I like about zero distance – it's so multifaceted.

So, for example, if there's a problem or an escalation, zero distance means all stakeholders are involved in finding a solution?

That's right. If an employee encounters an issue that stops them from working, we no longer have the back-and-forth to pinpoint whether the cause is the desktop system, the data center or the network. Everyone works together to resolve the issue immediately. This is a key characteristic of our transformation approach and is reflected in our end-to-end SLAs.

How close would you say you are to achieving zero distance to the business?

We're getting there – in our customer operations, for example in sales, we are already very heavily involved in process development. The same goes for financials and logistics. In R&D, we built an engineering environment cloud designed to accelerate continuous integration cycles. Since then, we've been concentrating on software development processes.

Do you think the idea of IT as an enabler of zero distance is as widely accepted as it should be?

The world of telecommunications, in other words the world of our customers (the 400 largest cell phone and landline network

"WITH THE RIGHT ICT MECHANISMS, WE CAN TRANSFORM THE COMPANY VISION FROM BLUEPRINT TO DAY-TO-DAY REALITY."

Digitization

CIO Talk_Dr. Manfred Immitzter



Dr. Manfred Immitzter (left)
talking to T-Systems
Global Account
Executive Oliver Herrmann outside the Nokia offices at the Gasometer business complex in Vienna.

operators globally), is starting to embrace the cloud as a technology and business model, something the IT industry did some years ago. For our customers, the telco cloud has an innovative but disruptive impact. They need to move fast – and we need to keep close to them as our customers. Five years ago, we would have said the trend is to commoditize infrastructures, networks and data centers, and to focus on applications and value-added services. That is why an increasing number of businesses have outsourced infrastructure. Today, however, IT infrastructure is no longer a mere commodity for telcos such as Deutsche Telekom and equipment manufacturers such as Nokia. It's not just something that I buy in the most cost-efficient way possible. It has the potential to be a genuine business enabler – in terms of how I deliver services in the future, and how I can develop a value proposition that was simply not possible in the past because the market mechanisms were completely different.

So you think infrastructure is experiencing a renaissance?
For sure. Systems integration, cloud service orchestration, insight into data centers, and the question of how I combine legacy on-premises services with native cloud offerings could all become core issues and important competitive differentiators again.

To strengthen your competitive differentiation, you've developed a program called Networks goes Cloud. What is that all about?

First, it's the foundation for our own cloud transformation. To accelerate time-to-market for our R&D activities, we recognized the need to deliver infrastructure as a service. But as we're dealing with patents and intellectual property, we opted for the private cloud solution I mentioned earlier.

Second, the program aims to revitalize cloud-based infrastructure at end-user level. Within the scope of our infrastructure renewal program, we want to enhance the scalability, flexibility and cost benefits of end-user services.

A further goal is to consolidate data center activities that were, until now, partly in the cloud, and partly on premises. These are all enterprise IT issues.

In addition, the initiative addresses our own service delivery; the network services we provide to customers, for example. Our Global Delivery Centers need a flexible, secure environment that supports increasing automation. So we want to provide them with a state-of-the-art cloud architecture.

Networks goes Cloud addresses one aspect of your own cloud requirements and multiple requirements that you have identified among your customers?

That's right. It's about deciding on the direction of travel, and improving our internal IT systems. These changes create new imperatives in terms of capacity, speed and the protection of intellectual property – and these, in turn, define our architecture requirements. Networks goes Cloud addresses all aspects of telco clouds, including the virtualization of network functions and SaaS models for customer experience management. Some of these areas overlap, and that's why we're taking a holistic look at architecture.

What does that mean for your partner ecosystem?

The current model comprises three elements; and as a result, three partners: one for enterprise applications, one for R&D systems, and one for infrastructure. We are planning to extend this ecosystem, adding a number of strategic partners for project-based tasks. Our primary partners are responsible for everyday IT operations: but to ensure a broad knowledge base, and avoid lock-in, we like to spread projects across multiple players.

You've just outlined the collaboration model. What do you expect of your service providers, their infrastructures and services, in terms of quality?

Nokia's business is based on the extremely high quality of its products. And I demand the same standards of our providers, their services and their networks – with zero downtime. Our partners are 100 percent behind our model. That is the only way it can work. I'm in a similar situation myself. I expect our partners to contribute value to the company; and our internal customers expect the same from me and the IT department. We have many users – but we also need to consider the value we're adding for their customers. This applies across the board to costs, productivity, availability, business parameters, and stakeholder satisfaction.

Résumé

Jim Hagemann Snabe, 49, hails from Copenhagen. He joined SAP in 1990, where he was co-CEO alongside Bill McDermott from 2010 until May 2014 before becoming a member of the supervisory board.



The heart of the matter.

JIM HAGEMANN SNABE KNOWS HOW TO CUT TO THE CHASE. AFTER 20 YEARS, THE UNCONVENTIONAL CEO IS STEPPING DOWN FROM THE SAP EXECUTIVE BOARD TO TAKE ON A NEW CHALLENGE.

<Copy> Markus Städeli

DESPITE RANKING AMONG THE DAX TOP BRASS, Jim Hagemann Snabe rarely seeks the limelight. When you first meet the former co-CEO of Europe's largest software player, SAP, the first thing that strikes you is how down to earth he is. It is clear that you are dealing with a rare breed: a C-level exec with no desire to hide behind rigid corporate structures and hierarchies. And as a quick look at Snabe's career reveals, this first impression is accurate. Splitting the chief role at a huge company like SAP is usually a recipe for disaster. But Snabe is quick to point out that his working relationship with co-head Bill McDermott has been a valuable source of motivation over the years. "We have always stood together shoulder to shoulder; our focus was firmly on SAP's success, not on our own egos," he remarks – and you take him at his word.

TIME FOR A NEW CHALLENGE

Every so often, Snabe gets a real sparkle in his eyes. For example, when he demonstrates how he can honk the horn of his Tesla via an app on his smartphone. No mean feat, considering that the electric car is parked hundreds of kilometers away in front of his family home. "My wife is sure to call any minute and ask what's going on," predicts Snabe, laughing. And right on cue, two minutes later his phone starts to buzz.

Snabe hails from Denmark and his family lives in Copenhagen, far from SAP's headquarters in the southern German town of Walldorf. This means he has not spent as much time with his two children as he would have liked in recent years. Apart from one short intermission, Snabe has been working with the enterprise software market leader since 1990. The distance has made family life difficult – prompting his decision to step back from the day-to-day running of the business last May, despite the fact that he is not yet 50. Since then, his colleague Bill McDermott has assumed the role of sole CEO, while Snabe is moving to the firm's supervisory board.

But he is far from slowing down. In fact, he is brimming with plans and ideas for this new chapter of his life. "I have made it my mission to support digitization in other industries – at companies such as Siemens, Danske Bank and Bang&Olufsen," he explains, listing the firms that are set to welcome him to their supervisory boards. Although they are quite different in nature, all three enterprises face the same challenge – to maximize the opportunities of the connected digital economy.

Snabe is skilled in expressing complex ideas succinctly. For instance, he describes the essence of 'Industry 4.0' in a nutshell: "Every company will become a software firm." Also referred to as the 'fourth industrial revolution', Industry 4.0 is one of Snabe's main areas of interest – the expectation that digitization will revolutionize traditional manufacturing in the coming years. "If we could take all the high-quality goods that are produced in Europe and use software and the Internet to connect them in an intelligent way, we would take a huge leap forward," explains Snabe, who has been discussing these issues with politicians such as Neelie Kroes, EU Commissioner responsible for the Digital Agenda for Europe. Without this sort of innovation, the continent will struggle to return to a path of sustainable growth. "We can't compete on the global stage in terms of labor or energy costs," he argues. "Our only chance is to use technology to make every working hour more efficient."

What's more, Snabe believes that digitization will significantly boost productivity – for instance, by supporting more efficient management of resources. Because the firms of the future will be constantly connected with consumers, they will be able to predict precisely what their customers need and when. "Today's system is based on mass production," he explains. "We manufacture large numbers of items and try to sell them afterwards. This is very inefficient." However, Snabe believes that the factories of the future will be software-driven. And while Europe has the industrial expertise, he stresses the need to improve our digital skills: "We will be relying on the creativity of the next generation." Against this background, SAP has launched an IT education initiative for young people, in cooperation with other heavyweights like Bosch and ThyssenKrupp.

But can Europe really close the gap on the USA when it comes to innovation? Snabe is optimistic, pointing to SAP as an example: "We are the world market leader in enterprise software. Creating a company like Facebook is comparatively easy. What we do – using software to intelligently model global supply chains – is, in contrast, very difficult." Similarly, European manufacturing has a strong record with complex products. Plus, the continent offers a robust industrial infrastructure – something that no longer applies to the USA. With the right strategies, the next gadget to make Snabe's eyes light up could be developed on this side of the Atlantic.

<Link> www.t-systems.com/zero-distance
<Twitter> [@jhsnabe](https://twitter.com/jhsnabe)

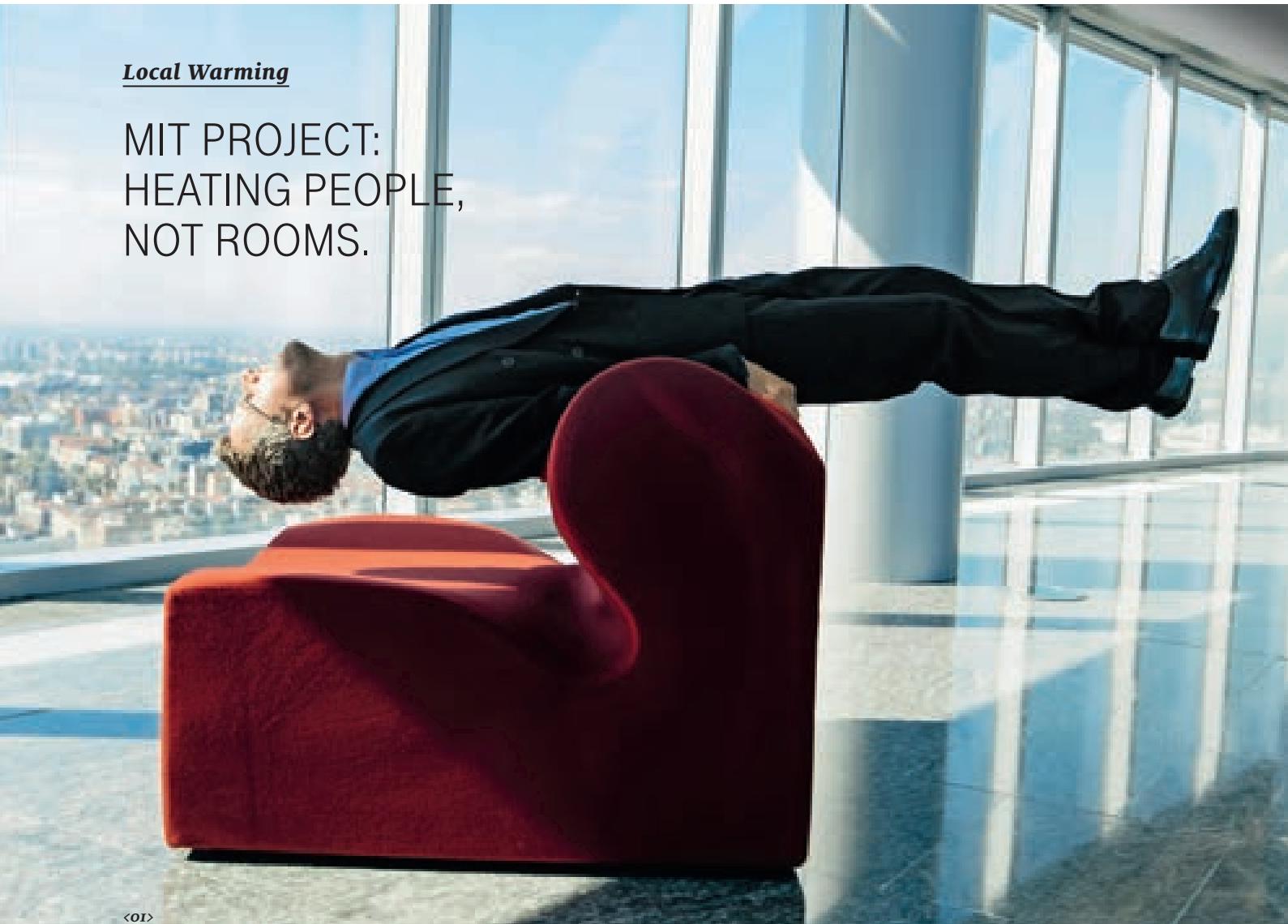
Cool ideas and hotshots.

WHERE DOES THE PRESENT END AND THE FUTURE BEGIN? IN THIS DAY AND AGE, IT'S DIFFICULT TO SAY. A PRIME EXAMPLE ARE THE FORWARD-THINKING RULE BREAKERS AND GAME CHANGERS THAT ARE EMERGING ACROSS ALL INDUSTRIES. THEIR BUSINESS IDEAS ARE SMART, SIMPLE, AND ABOVE ALL, IN SYNC WITH CUSTOMER NEEDS. WE TAKE A LOOK AT THREE VENTURES FROM AROUND THE WORLD: IN THE US, THE LOCAL WARMING HEATING SYSTEM DIRECTS HEAT TO PEOPLE AND NOT ROOMS; GERMANY'S OUTFITTERY DELIVERS A CURATED SHOPPING EXPERIENCE ESPECIALLY FOR MEN; AND CHINESE COMPANY KANDI COMBINES E-MOBILITY WITH CAR-SHARING FOR THE MASSES.

<Copy> Laura Hamdorf

Local Warming

MIT PROJECT: HEATING PEOPLE, NOT ROOMS.



THREE YEARS AGO, Carlo Ratti sat in a Milan café, looking at an outdoor heater. What a waste of energy, he thought. Most of the heat does not reach the person sitting below but simply disappears skywards. This got Ratti thinking. And he concluded that many types of heating are actually pretty inefficient. To him, it seemed pointless to heat entire buildings when the real aim is to keep the people themselves warm. "I realized that there is incredible untapped potential for conserving energy by introducing mobile systems," he explains.

A BUBBLE OF HEAT IN A COLD ROOM

Dr. Carlo Ratti is an Italian architect and engineer. But he is also a leading researcher at MIT. To further develop his idea of heating for people, not rooms, he created the Senseable City Laboratory, where the concept of Local Warming was born. As soon as someone enters a room, highly sophisticated sensors detect them. The sensors respond to

movement and are constantly focused on people, directing infrared rays wherever they go. Currently, each sensor can be used to provide heat to one person only. The first prototype was installed in MIT's main lobby in 2012. "The project was both successful and fun," recalls Ratti. The latest model will be showcased in June 2014 at the Venice Biennale of Architecture.

Ratti believes that Local Warming could take off in many cities. "The best way of predicting the future is to shape it," he says, quoting IT expert Alan Kay. And it is this kind of inventive spirit that Ratti is famous for: he has created flying pixels, built a pavilion from water, and designed an artificial cloud as a viewing platform for the London Olympics. "Our cities will become open-air computers," he reveals. "Ever smarter, ever more sentient."



<01> In 2011, Forbes magazine listed him as a name you need to know. Today, Dr. Carlo Ratti (above) heads up the Senseable City Laboratory at MIT where he developed Local Warming.

<02> The first prototype was installed in MIT's main lobby (lobby 7) in 2012. Three sensors automatically detect people passing by and direct heat toward them.

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Outfittery/Kisura

CURATED COMMERCE, A PERSONAL SHOPPING EXPERIENCE - EVEN AWAY FROM THE STORE.

MANY MEN FIND TRAWLING the mall for clothes dull. But online shopping does not deliver the same level of service and tailored advice. The personal shopping service Outfittery, launched in 2012, aims to bridge this gap, offering Internet shopping for men with the help of a personal stylist. As Julia Bösch, co-founder and CEO of the startup, underlines: "Our customers receive a much more personal service than they would in a store – and that's something they value."

A LEADER IN THE DIGITAL AGE

At Outfittery, everything is about the customer. That's why at the heart of the startup is a sophisticated CRM system that adds a whole new dimension to the concept of zero distance. Visitors to www.outfittery.de simply input details about their own individual style, exchange ideas with a shopping consultant via email or telephone and then receive a package by mail containing a selection of items and a personalized note. The idea is taking off fast. After just two years, the Berlin-based startup has 100 employees and around 100,000 customers. On average each order is worth 250 euros. Store owners can only dream of

figures like these. At CeBIT in mid-March 2014, Outfittery was named newcomer of the year and awarded the title "Leader in the Digital Age". "For startup founders, every day is different," says Julia Bösch. "It's like a roller coaster." Her current project is international expansion. And she has already launched Outfittery in Switzerland, Austria and the Netherlands. The concept is an interesting development, taking online retail and zero distance to the next level.

The female pendant to Outfittery is Kisura, a curated commerce service for women. Founder Tanja Bogumil sees this type of retail as a logical development of online sales. "Personalized shopping takes us away from the product itself and towards the customer," she explains. Her oldest customer is a web-savvy 75-year old who favors a nautical look.

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<Links> [www.outfittery.de \(only available in German\)](http://www.outfittery.de)

[www.kisura.de \(only available in German\)](http://www.kisura.de)

Two years ago, Anna Alex (left) and Julia Bösch (right) founded the personal shopping platform Outfittery, offering tailored style advice to men. Following a consultation with a personal stylist, customers receive a package containing high-quality outfits in the mail.

Kandi

E-CARSHARING. KANDI'S SOLUTION TO AIR POLLUTION IN CHINESE CITIES.



AUTOMATED PARKING LOTS are becoming a common sight in the Chinese city of Hangzhou. These self-service vending machines are similar to bicycle rental systems: customers can hire electric vehicles using a chip card, returning it at their destination. Cars cost the equivalent of two euros per hour – making them cheaper than a taxi ride. And monthly leasing agreements are also available.

GOVERNMENT SUPPORT FOR E-MOBILITY

Reducing China's high demand for transportation is no mean feat. Automotive player Kandi aims to combine car-sharing and e-mobility to minimize the number of privately owned cars with combustion engines on the streets. But the company is not tackling carbon emissions alone. The Chinese government has pledged to subsidize two million electric cars and invest the equivalent of 47 billion euros in e-mobility by 2020. And there is good reason to do so: air pollution levels in many Chinese cities are significantly higher than the defined thresholds. According to a study by the Shanghai Academy of Social Sciences, Beijing in particular may soon become uninhabitable.

Kandi's CEO Xiaoming Hu sees this as a challenge. His company specializes in new energy vehicles to combat environmental pollution. Together with automotive player Geely, Kandi develops, produces and markets e-cars and the accompanying high-tech automated vending facilities. The two enterprises are planning to produce 100,000 vehicles and 750 parking lots for the residents of Hangzhou alone.

The cars have a range of 120 kilometers and reach speeds of 80 km/h. Yet many drivers are still reluctant to switch to e-mobility, as they fear not being able to find a charging station when they need one. With Kandi, this is no longer an issue: the cars' batteries can be replaced quickly and simply by robotic arms at the parking lots. Maintenance and insurance are included in the price. Despite the challenges, CEO Hu is certain that this business model will be adopted in other Chinese cities, including Beijing and Shanghai.

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en.kandivehicle.com

The e-cars closely resemble Daimler's Smart cars. A four-door model will soon be launched on the market.

Cloud Broker.

<Copy> Roger Homrich

CLOUD SOLUTIONS HAVE BEEN USEFUL TOOLS in the IT department's toolbox for quite a while. Now, they are gaining ground in the wider enterprise, among the lines of business. Almost one in two departments already purchases its own cloud services. Infrastructure as a service (IaaS) offerings, especially, are in great demand. There are a large number of providers to choose from, each with their own range of solutions for specific tasks. This results in a mix-and-match multi-cloud environment – with very little integration. Alternatively, companies might opt for a single cloud vendor. Yet that route brings its own difficulties. It makes it impossible to quickly switch provider, and removes one of the main benefits of the cloud: flexibility.

Businesses that go down the first path, choosing a multi-cloud environment, run the risk of losing track of their solutions, of taking a back seat and not actively managing their services. Until now, the tools required to centrally coordinate individual offerings were simply not available. Cloud Broker from T-Systems addresses this challenge. Users can purchase and manage their solutions via an online portal, automatically scale them up and down, and transfer data between providers of public, private and hybrid clouds.

Cloud Broker runs on a highly secure platform where customers can manage cloud-based IaaS solutions and transfer data between them. At present, it includes API interfaces to services such as DSI vCloud from T-Systems, Amazon Web Services, and Windows Azure. Environments based on VMware vCloud, Eucalyptus, Hewlett Packard Cloud and OpenStack can also easily be integrated. Customers can access Cloud Broker with or without a secure virtual private network – even when on the go.

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COMPLETE PRICE TRANSPARENCY

Each user receives personal log-in credentials for the Cloud Broker portal, where they can access the full range of services. Via a single user interface, they can define, start, stop and cancel workload processes. Moreover, Cloud Broker enables centralized reporting and cost calculation. It works out precisely how much each department, or even individual user, has consumed. And the customer can set specific limits. If a department has been granted a set quantity of resources per month, and it is nearing the threshold, Cloud Broker will issue an alert – leaving ample time to negotiate a higher budget or scale back usage.

FOCUS
_ 33

Digitization
Cloud Broker

The screenshot shows the Cloud Broker Management Portal interface. It includes:

- Management Portal** header with navigation: Home, Configure, Provision, Control, Decision Engine, Transformation Engine, Automate, Reports & Analytics, Billing & Payments.
- Current Consumption & Cost**: A bar chart showing consumption over time (March, April, May) across different clouds.
- Compute & Storage #**: A table showing compute and storage usage by provider, and a pie chart showing the distribution of workloads.
- Products**: A section showing available products like AWS Compute optimized instances.
- Cloud Health**: A table listing cloud providers and their status.
- Requests waiting for your Actions**: A table showing pending actions.
- TRANSFORMATION ENGINE**: A diagram illustrating the migration of workloads from Provider A to Provider B.
- DECISION ENGINE**: A section for configuring cloud options, with sliders for Technology, Region, and Costs.



AUTOMATED SCALING

No one cloud provider has limitless capacity. Cloud Broker overcomes this problem. The solution monitors load within the virtualized environment, and automatically provisions additional resources to meet peaks in demand. It recognizes when defined thresholds have been exceeded or when capacity outstrips demand, and scales up and down accordingly. This saves money that would otherwise be wasted on idle assets. An integrated load balancer enables workloads to be spread across multiple clouds.

Scan for more information or visit
www.t-systems.com/video/cloudbroker



FLEXIBLE TRANSFER BETWEEN PROVIDERS

For most people, cloud computing is synonymous with scalability. But each individual provider has their limits. Until recently, transferring workloads between clouds was impossible. Even as the cost of IaaS fell, switching providers involved too much migration effort, cancelling out any potential savings. This is where Cloud Broker comes in: its transformation engine enables the migration of virtual machines from one provider to the next with ease and speed, and at low cost. Customers can also move from the public to a private cloud in a few simple, automated steps.



Illustration:SaschaBieri

How digital is your enterprise?

IT'S A TRICKY QUESTION. AND IT GOT TRICKIER STILL - WHEN THESE GLOBAL CIOS WERE ASKED TO RATE THEIR COMPANIES ON A SCALE OF ONE TO FIVE, WITH ONE BEING "NOT AT ALL DIGITIZED", AND FIVE BEING "COMPREHENSIVELY DIGITIZED".

<Copy> Horst Ellermann

HOW SHOULD SOMEONE LIKE HENRIK TREPKA, CIO at ISS answer? The Danish company he works for is the world's largest facility manager, with a headcount exceeding 530,000. Most of Henrik's colleagues are cleaners or security guards. It doesn't seem like much could be digitized – except perhaps the cleaning schedule or the patrol route.

Henrik, however, still gives his organization a mark between four and five – and not without reason. ISS keeps its customers informed by email, detailing which services are available in which buildings across the world. And soon, the buildings themselves will be able to send text messages when the floors need polishing and the corridors patrolling. That's what adds value for ISS. Cleaning is a commoditized service – and even if you could scrub a little harder than your competitors, customers are generally unwilling to pay a premium. Digitization helps ISS gain competitive differentiation.

Deploying the right kind of IT is the only way to add value. So our question isn't as silly as most CIOs first thought. Administrative tasks have been electronic for some time now. Accountants don't make notes on paper. Suppliers don't simply jump into their truck and deliver production materials when you give them a call. Factory managers don't feed those materials into machines based on guesswork. Of course not. But these aren't the only aspects of a business that can be digitized – even for discrete manufacturers such as Sulzer, Kärcher, and Grohe.

"When farmers use pesticides today, it involves more IT than the average person would ever imagine," explains Robert Blackburn, Chief Supply Chain Officer and CIO at BASF. Many farmers do not leverage the latest technology – and their potatoes won't notice. Farmers who are customers at BASF, however, can spray pesticides from a GPS-guided tractor. Unlike the potatoes, they understand the difference – and they're willing to pay for it.

The forward march of digitization is often slowed by people, not technology. Alexey Khorunzhiy complains that he would be able to give Alor stockbrokers a five – but some processes cannot be digitized under Russian law. For example, clients must physically present their passports to be authenticated for stock exchange trading. Alexey insists that these processes are leaner and quicker in other parts of the world – however, our Brazilian and Spanish respondents would probably beg to differ.

Media players such as ProSiebenSat.1 and DirecTV, the world's largest pay television broadcaster, boast the greatest degree of digitization. After all, the products themselves are made up of bits and bytes. Mike Benson, CIO at DirecTV, has equipped his 14,000 service engineers with mobile devices that allow them to complete all their tasks on the go – including activating new accounts. These devices are the last remnants of an era when businesses relied on physical assets. Now, enterprises are barely tangible. They might not be easy to clean, but they are equipped for the digital age.

*My IT has to get
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light, low s*

Value in care

will probably c

which consists of

Vendor Know How + 22 Methods, Shabla

30 CIOS AND THEIR DIGITAL BUSINESS MODELS

Within the scope of CIOmove 2014, top executives were asked to rate their enterprises' degree of digitization. CIOMove saw 30 IT decision makers from around the world travel through Germany on a special train.* As part of their journey, they visited the T-Systems booth at CeBIT. And what was the general consensus on the train and at the trade fair?

Germany is on the right track.

For more information, visit CIOmove.com

*Not all of the 30 CIOs approved their videos to be viewed by the public.

1



Matthias Mehrtens

KÄRCHER,

World market leader in cleaning equipment

Representing: Germany

Rating: 2

"I would say two, but that IT is becoming much more important now. IT today is so innovative - we need to ask ourselves how technology can help business to develop."

DEGREE OF DIGITIZATION



Ursula Soritsch-Renier

SULZER,

Traditional engineering company

Representing: Switzerland

Rating: 1

"Our level of digitization is very low. I think industrial manufacturing in general is lagging behind because of the nature of the sector. Pumps are our core business - from deep sea to waste water pumps. Industrial machine manufacturing has always been very localized or regionalized."



Dirk Altgassen

GROHE,

Europe's largest manufacturer of bathroom/
kitchen fittings

Representing: Germany

Rating: 2

"I would say we're at two, but increasing to three. We have started to implement a product management information [PIM] system. Our goal is to transfer all product data to the PIM system."

DEGREE OF DIGITIZATION



Mary Sobiechowski

KANTAR,

*World's second largest market researcher,
specializing in healthcare*

Representing: the UK

Rating: 3

"Before, our consumers didn't have much of a voice. But that is changing: not only are people using wearables to capture biometric data, but they're carrying it around on their smartphones and taking part in video interviews."



Robert Blackburn

BASF,

The world's leading chemical company

Representing: Germany

Rating: Between 3.5 and 4

"When farmers use pesticides today, it involves more IT than the average person would ever imagine. For example, there is a huge variety of agricultural apps. Business processes have become increasingly digitized over the last few years."



Tim Platt

TOYOTA,

Engineering and Manufacturing

North America

Representing: the USA

Rating: 3 (moving toward 5)

"Manufacturing is no longer a purely mechanical world. We need to integrate data from multiple sources to make suitable, effective manufacturing decisions."



Sören Birkström

REITAN CONVENIENCE,

*Retailer, operates 7-Eleven and other stores in
Scandinavia*

Representing: Norway

Rating: 4

"We operate convenience stores. And in our physical shops, we are adopting an increasing number of electronic services. We want buying a coffee to be a more interactive experience - so if our customers rate five cups of coffee, the sixth is on us."



Thomas Henkel

AMER SPORTS,

*Sports equipment manufacturers – products
include ski brands Atomic and Salomon*

Representing: Finland

Rating: Between 3 and 4

"I think our biggest success has been harmonizing all our platforms. That really helped us to establish e-commerce solutions in record time, even across all brands in twenty countries."



Alexey Khorunzhiy

ALOR GROUP,

*Fast-growing Moscow-based
stockbrokers*

Representing: Russia

Rating: 4

"The only areas of our business not based on digital technology are those prohibited by the law. The customer has to come to us in person and show their passport to carry out the initial identification."



6

**Henrik Trepka**

*ISS WORLD SERVICES,
The world's largest facility service provider,
with 53,000 employees
Representing: Denmark
Rating: Between 4 and 5*

"Our customers have direct insight into what we deliver around the globe. Now we are really engaging with the business to work on various innovation activities and utilize new cloud possibilities and smart building technologies."

**Andreas König**

*PROSIEBENSAT.1,
Premium channel that also
provides online video
Representing: Germany and Austria
Rating: 6*

"On a scale of one to five, I have to say six – we are fully digitized. IT is required for everything we do, be it broadcast TV or online video."

**Guus Dekkers**

*AIRBUS/EADS,
They make things fly
Representing: France
Rating: 5*

"I would say five. With the A350 in particular, we provided our engineers with a new product lifecycle environment, helping them to make the right product design choices from the very beginning."

**Mike Benson**

*DIRECTV,
The world's largest pay television channel
Representing: the USA
Rating: 5*

"We want to make TV available anytime, anywhere, and we're leveraging cloud, mobile and social technologies to get there. The cloud and our mobile strategy are vital – and not just for our 14,000 technicians."



A digital snapshot: as part of their tour of Germany, 30 CIOs visited Code_n, the CeBIT exhibition hall for startups. Prior to the trade fair, on their own special train to Hanover, the IT experts had engaged in a peer-to-peer discussion on establishing innovative solutions in their enterprises. And what conclusion did they come to? For one, that you should not wait for the business side to make the first move.

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Who's the boss?



PROF. DETLEF ZÜHLKE FROM THE GERMAN RESEARCH CENTER FOR ARTIFICIAL INTELLIGENCE ON HUMAN-TO-MACHINE INTERACTION IN THE AGE OF INDUSTRY 4.0.

SMART TECHNOLOGIES HAVE PERMEATED almost every aspect of our daily lives. Anytime, anywhere web surfing on our cell phones has long been second nature to us. But now this Internet of People is being superseded by the Internet of Things and Services. And this development will bring about far-reaching changes in manufacturing. The pivotal premise of the evolution toward Industry 4.0 and a digital revolution is that every single element of a factory – from simple tools, through products, to entire systems – has built-in connectivity. As a result, all of these components can capture large volumes of data from their surroundings, process and forward it. To a certain extent, this enables them to organize themselves autonomously within networks of smart, decentrally distributed objects. Thanks to integrated communication capabilities, items in factories can ‘talk’ to their environment. For example, semi-finished goods can tell the production line on the fly what tasks need to be performed next. This growing self-organization of machines and parts paves the way for complex production scenarios that would have been unthinkable just a short time ago. For example, individual products can be flexibly manufactured in the same way as mass-produced items, without the need for human intervention. Retooling machines is also much simpler: in our Smart Factory in Kaiserslautern, we have put user-friendly plug-and-play concepts for fast, hassle-free retooling through their paces and successfully demonstrated their potential.

HUMANS ARE STILL IN CONTROL

In contrast to the CIM (computer integrated manufacturing) era of the late 80s, the goal of Industry 4.0 is not to banish people entirely from the factory floor. On the contrary, humans have an important role to play in overseeing the entire production system and as creative problem solvers. Industry 4.0 is designed to bring people and advanced machinery together. At the same time, it raises socio-technological questions with regard to autonomy and decision making.

The Law of Requisite Variety from the field of cybernetics offers an interesting perspective. According to this principle, a controlling system needs at least as much variety in state as the system being controlled, simply to balance out and respond to disruptions and discrepancies. And precisely this role as a flexible, creative trouble-shooter for production systems is reserved for human beings – if you like, as managers overseeing the entire process.

GREATER RESPONSIBILITY FOR EMPLOYEES

So machines will not usurp humans, rather Industry 4.0 will change employees' requirements and the tasks they perform in the factory. In the future, the primary job of staff will be to develop production strategies and monitor their implementation within self-organized processes. Consequently, as comprehensive integration and the

idea of always-on availability take off, traditional roles such as those in the control center and back office will lose their importance. However, to support this development, we need new assistance solutions that provide relevant information on products, processes and systems to the right employee at the right time. This will enable people to make decisions and monitor processes remotely and for a large number of production systems simultaneously. If something fails, or when it comes to optimizing processes and exploiting potential, it is still the human that is called upon, not the machine.

INDUSTRY 4.0 NEEDS AN INTERDISCIPLINARY APPROACH

But how can we respond to these changing roles and demands, and the challenges they bring from an organizational and technology perspective? Firstly, through modified certification strategies that reflect the cross-disciplinary interplay between IT and engineering that Industry 4.0 requires. This calls for a deep understanding of the Industry 4.0 paradigm and its potential for streamlining manufacturing based on increased transparency and flexibility in production. And it also requires knowledge about the methodologies and technologies that are essential for the successful implementation of Industry 4.0, for example network protocol.

Secondly, we need the right human-to-technology interfaces and solutions – ones which afford people a transparent view of integrated, decentrally distributed production systems, empowering them to do a better job based on real-time information. Recent trends in human-to-machine interaction such as the ‘iPhonization’ we’re seeing in the consumer sphere are promising developments that deliver a host of opportunities. However, there is still some way to go in terms of research and solution maturity before they can be implemented in an industrial context.

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Résumé

Prof. Detlef Zühlke is Head of Innovative Factory Systems at the German Research Center for Artificial Intelligence and chairs the production automation department at the University of Kaiserslautern.

Forward-thinking, backwards-parking.



HOW DO AUTOMAKERS FIND
CHINESE MOTORISTS?
INCREDIBLY RECEPTIVE.
BECAUSE THIS TRULY IS A NATION
WITH AN 'ALWAYS-ON' MENTALITY.

<Copy> Guido Reinking*

***Note** The author of this article is Editor-in-Chief of Automobilwoche magazine where excerpts were published in early May, issue 10/14.



PEOPLE DO THINGS DIFFERENTLY IN CHINA. Even parking. In fact, 90 percent of drivers take the opposite approach to their European counterparts: "The Chinese reverse into bays and drive out forwards," says Alexandra Strassburger, who studied the living and travel habits of Mercedes owners in the country for Daimler. "And while customers in the USA and Europe often stow a coffee, a bottle of water or a Coke in the cup holder, the Chinese use it for freshly brewed tea." A heated drinks holder designed to fit the popular tall tea flasks would be an ideal accessory in Beijing or Shanghai. "Moreover, it's not unusual for people to have several cell phones," observes the trend expert, "So the S-Class ideally needs space to store and charge two or three mobile devices."

But tea and phones are not the only differences German carmakers need to address on the Chinese market.

They also need to rethink their approach to vehicle sales and maintenance. "People are online pretty much 24/7, their smartphones barely leave their hands," says Daniel Lescow, responsible for the Smart brand in China. And manufacturers can benefit from this trend. Smart, for instance, produced a limited series exclusively available via Internet service WeChat, the Chinese equivalent of WhatsApp. People eager to get their hands on one of the 388 cars – the number eight is considered lucky in China – had to submit their details and pay a deposit of 999 renminbi (115 euros).

MOBILE MARKETING WINS OUT

The success of this online campaign was phenomenal: "1,800 people registered and paid the deposit via smartphone," recalls Lescow. Within just three minutes, all 388 cars had been snapped up. And a similar promotion on Weibo, the Chinese version of Twitter, was just as much a hit. "People have a much more open approach to the Internet here. Customers have no reservations at all," comments Lescow.

For western automakers, the Chinese market offers almost limitless possibilities for growth. By 2020, 100 of China's cities will be home to at least five million citizens. The country and its crowded megacities are rapidly becoming popular test markets – for electric cars, in particular, but also for innovative web-based service, sales and marketing ideas.

Audi, for example, is piloting its Connect Concierge Service in China with the aim of strengthening customer brand loyalty. By simply pressing a button in the car, drivers can contact a dedicated call center where English and Chinese-speaking staff are on hand to offer assistance. "They might be asked to provide directions on how to find a particular point of interest or where the nearest Sichuan restaurant is," explains an Audi spokesperson. "We can't leave everything to machines." If the driver needs help with a destination, agents can send it directly to the in-car navigation system. "The Chinese language uses many symbols and sometimes people find it easier



Whether they're in the repair shop, the car wash or the parking lot, China's drivers never let their vehicles out of their sight.

to remember the phonetic version of an address. When you're driving along, it's much more convenient to have a call center employee enter the right characters for you." Moreover, this Internet-savvy nation still values personal interaction. "We're responding to the specific requirements of our customers here. Audi was the first carmaker to create a touchpad to input Asian characters. And the new call service enables car owners to safely search for and save destinations while they are driving. It has been very well received," remarks Dietmar Voggenreiter, President of Audi in China.

THE ALWAYS-ON SOCIETY

Zhu Lingjun can only confirm this sentiment. He runs Beijing Boshiruida Auto, a Mercedes dealership on the outskirts of the capital. Customers arriving at this state-of-the-art showroom are greeted by four friendly receptionists. But for Zhu, there are other perfectly normal ways to sell cars – such as via social media app WeChat, which has over 400 million users. "We have our own platform on the messaging service and post all our new vehicles there," explains Zhu. "And we leverage all new media." The figures speak for themselves: his dealership sold 2,600 cars last year and the business has 23,000 online followers. Customers make service and maintenance appointments, inquire about cars or ask for a demonstration of vehicle features – all via their smartphone.

Senior Vice President of T-Systems' Automotive Division, Luz Mauch, sees the always-on mentality in the Far East as a call from customers to carmakers and dealers for more communication. "We're always asking ourselves: how can I interact with potential customers? And we are working on a multitude of projects that aim to enable zero distance and enhance customer experience management."

Footfall in bricks-and-mortar showrooms is decreasing. So we need to explore alternative channels and not limit communications to direct on-site contact." (See interview on page 43.)

At the start of May, Audi launched a new iPhone app in China. Audi Top Service is designed to save car owners the trouble of flicking through their vehicle handbooks. "The software includes electronic manuals, descriptions of the symbols on the dashboard, tips on care and maintenance, and real-time traffic data," outlines an Audi spokesperson. It can also locate the nearest Audi dealership and provide instructions on how to reach it. If it proves a success, the app will be rolled out to other countries.

Daimler is also using China for pilots: Beijing Boshiruida Auto was the first Mercedes dealership in the world to implement the brand's new corporate identity – with black and silver as the dominant colors. Specifications from Daimler HQ in Stuttgart on the design and interior of dealerships are strict and the costs are high. Yet even in the age of online marketing, Daimler hasn't lost faith in the world of bricks-and-mortar. "After all, this is where customers come to collect their new car or bring it for a service," says Fredrik Gollob, in charge of dealership network development at Mercedes-Benz in Beijing. "So the brand has to live up to the promise communicated online."

In this respect, China is no different to anywhere else, even if drivers do reverse park. And if you look at traffic on Chinese streets, it's easy to see why backing into spaces has taken off. The roads are congested and drivers are impatient. And as trend analyst Strassburger notes: "No one will wait while you reverse out of a space when you want to get back on the road." But unfortunately, there's no app to help you with that.

Cell-phone shopping – Chinese drivers snapped up Daimler's limited series of 388 Smarts in only three minutes.



<Links> daimler.com
int.smart.com
audi.com



Interview

“THE RIGHT PRODUCTS NEED TO BE AVAILABLE.”

Interview with Luz Mauch, Senior Vice President of T-Systems' Automotive Division

Mr. Mauch, in China, the automotive industry relies heavily on social media, mobile Internet services and retail platforms to market products and interact with potential customers. Are you seeing a similar trend in Germany?

Absolutely. The always-on mentality in the Far East is practically a call from customers to carmakers and dealers for more communications. Automotive industry players have to ask themselves: how can I interact with potential customers? We are working on a multitude of projects in this area that aim to enable zero distance and enhance customer experience management. Car showrooms are seeing ever-fewer visitors, which means that communications need to go beyond face-to-face contact and explore new channels.

Unlike here, it's not unusual for people in China to have two or three smartphones each. And the majority of consumers have no problem sharing their data with companies. Do you expect to see a similar development in Europe?

Not in the immediate future. But it's a generational question. Younger users have fewer reservations. Studies show

that if customers see a clear benefit for themselves, they are much more likely to share personal data. For example, they don't mind if their blood group is communicated to first responders in an emergency, because it helps them. However, data security is a sensitive issue, especially in Germany, and we can only put people's minds at ease if we have tangible solutions.

That means the question “how do we gain and retain customers?” has still not been answered?

No, in terms of in-car connectivity, we're yet to find an app that every single driver simply must have. But things are moving in the right direction. At the moment, 58 percent of Chinese vehicle owners say they'd like connected-car services in their next car. In Germany, it is around 20 percent. But I'm sure that if we ask again in five years' time, the result will be very different.

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BEST PRACTICES



EPCOS

STRONG SUPPORT FROM THE CLOUD.

Come crisis or boom, enterprise IT must remain flexible – supporting the business, whatever the market throws at it. One great way to make this vision reality is to transform the IT environment and transfer it to the cloud: as EPCOS was destined to discover.

<Copy> Ralf Bretting

THE ADVENT OF GERMANY'S INDUSTRY 4.0 initiative, the rise of automated manufacturing, and the dawn of e-mobility and smart grids in the electric power industry are breathing new life into the electronic components market. For years, businesses fought a lonely battle against stagnating revenues, falling profits, and elusive growth. In the struggle for survival, many were forced to tighten their belts. Enterprises that hadn't done their homework on their production management or their fixed costs floundered fast. But fortunately, EPCOS did not fall into this category. The subsidiary of Japanese electronics company TDK was quick to recognize the financial benefits of streamlining its ERP systems architecture and implementing professional SAP application management. This



"IT WAS EXACTLY WHAT EVERY CIO WOULD WISH FOR FROM MIGRATION TO THE CLOUD: ON TIME, RELIABLE, AND SEAMLESS."

Markus Danowski,
CIO of EPCOS

strategic move enabled CIO Markus Danowski to enhance the efficiency of the IT department's operations – putting the company in a strong position to capitalize on the current market upturn. Because in 2014, all indicators are pointing toward worldwide growth.

EPCOS recognized this development and used it to its advantage – making a key move to enhance its competitive edge. In fall 2013, it transferred its central SAP ERP system to a private cloud. Since then, its applications – from materials procurement, to order and materials requirements planning, to production control and plant logistics – have all run on virtualized servers at T-Systems' data center in Singapore. And all this happened despite EPCOS once having taken a more cautious

attitude to the cloud. "Transforming our IT and leveraging cloud computing was simply not an option we were actively considering," elaborates EPCOS CIO Danowski. Yet there were good reasons for the company to change its mind: the global market for electronic components, modules and systems does not look set to become any less volatile. Against this background, it is all the more important for IT to be able to respond quickly to user departments' needs when there is a sudden surge in the market, and additional SAP resources are required at short notice. "The cloud has substantially increased our flexibility," Danowski continues. "In the past, every time we wanted to provide our business units with extra computing power or temporary test systems, we first had to procure the

necessary hardware and software licenses." Now, thanks to the cloud, EPCOS has been able to reduce its annual costs for basic operations by over 20 percent – without compromising on quality. Performance levels, user numbers, functionality and services can be modified at any time in line with changing needs, scaling up to meet sudden peaks in demand.

SEAMLESS MIGRATION TO THE CLOUD

The fact that migrating to the private cloud entailed little internal effort only underscored EPCOS' decision. The goal was to ensure a seamless transition for users – whether they were in the EMC lab in Regensburg, Germany, or in the sensor plant in Batam Panbil, Indonesia. To this end, T-Systems developed a new solution that allowed the existing IP addresses for the non-SAP systems to be transferred to the cloud without modification. All that Danowski and his international project team had to do was to bring the network connections up to the latest standard and put the functionality through its paces.

Everything else remained just as it was: the warehouse systems, the fax applications, and the interfaces. With the exception of Danowski's team, no-one had to worry about the weekend switchover: it went off completely unnoticed. For the SAP users, testing required virtually no effort. "It was exactly what every CIO would wish for: on time, reliable, and seamless. At every stage of the transformation project, we were confident that we had an experienced partner at our side who would take our specific needs into account."

Now, the interdependencies between the user devices, storage systems, networks and applications are clearly documented. Moreover, the various services and processes are well coordinated at the key interfaces. And because the T-Systems team in Singapore was just as familiar with EPCOS' existing SAP environment as it was with the new cloud architecture, it was able to quickly achieve the synergy EPCOS desired. The dynamic cloud solutions for SAP have already been successfully implemented at EPCOS – and in the future, they could quickly and easily be adapted for the Japanese parent company, TDK.

EPCOS' positive experience with the private cloud has left it hungry for more. Markus Danowski may well go on to centralize the company's worldwide manufacturing software systems and transfer them to the cloud, too. This would allow EPCOS to further reduce its fixed costs and free up more of the IT budget. And pioneering IT projects like this don't just benefit electronics enterprises – they can make a splash in a host of industries.

Dynamic Workplace services from the cloud

...TETHERED TO THE DESK OR TAKING TO THE ROAD?

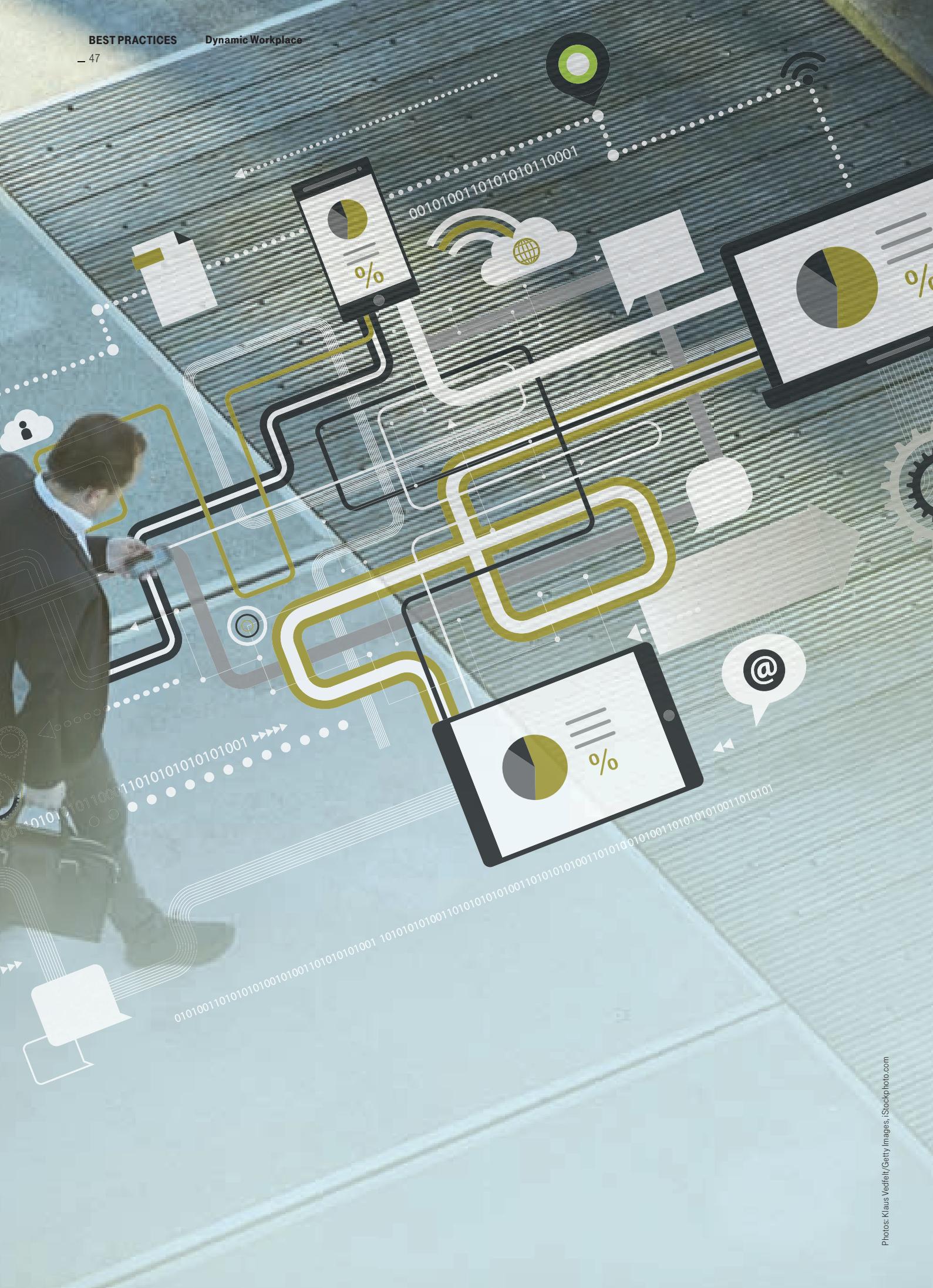
The physical office, complete with desk, PC, and landline telephone, is fast becoming a thing of the past. In the future, the workplace will be mobile, digital and available anytime, anywhere. So it's not surprising that an increasing number of enterprises are switching to virtual desktops – such as Dynamic Workplace from T-Systems, delivered directly from the cloud.

<Copy> Yvonne Nestler

IN THE FUTURE, employees won't have to trek to the office every day. Any screen will do – on a conventional desktop PC, laptop, tablet, or smartphone. Virtual desktops can be accessed from any location, at any time of day – the user simply signs in, and away they go. Because the data and applications that were once stored locally now reside in a remote data center.

In a survey conducted by Vanson Bourne in 2013, 46 percent of IT decision makers stated that investing in desktop virtualization was a priority. But many CIOs remain uncertain – will implementation be time-consuming and complex? How reliable will the data center be? What kind of performance can be expected? And what about security – can't cybercriminals take out dozens, perhaps hundreds, of desktops at a stroke? IDC also identified concerns over storage costs and license fees as further reasons for a reluctance to make the switch. And a study from Pierre Audoin Consultants showed that 60 percent of German CIOs are expected to either have the same or a tighter budget for desktops for the next one to two years. So what are the options?





Using a browser, employees have the same view of their desktop – on any device, anytime and anywhere.

ON CLOUD NINE

Such fears are misplaced, at least when it comes to cloud-based virtual desktops such as Dynamic Workplace. The provider is responsible for implementation, data center operations, and security. The CIO simply submits a request for the number of seats required, and services are charged based on actual usage. T-Systems has calculated that this can lower the total cost of workplace infrastructure by up to 40 percent. Thomas Gierich, Business Development Executive for Workplace Solutions at T-Systems, explains another benefit: "Employees can access their desktop anytime, anywhere, via a web browser – and it will have the same look-and-feel no matter what the device."

T-Systems processes and stores all data within the borders of Germany to ensure bullet-proof security: all data centers comply with the country's strict data protection legislation. However, for enterprises that are wary of off-premises IT infrastructure, there will be an alternative available from 2015: this same solution can be deployed in the customer's own data center, yet still be operated and maintained by T-Systems.



SCENARIOS

UP TO SPEED WITH HIS PROJECTS

Project manager Peter Robinson (41) has to get up early for a business trip. He uses his personal tablet to check his work emails while eating breakfast. Peter requests a password, which arrives via text message seconds later. He calls up the log-in screen in his browser, and enters the one-time password and his PIN (for two-factor authentication). Once he has dealt with his emails, he has time to check the latest project updates. Thanks to single sign-on for all applications, there's no need to log in again. Peter uses his laptop to continue working on the train, accessing the same user interface as he did on his tablet.

KNOWLEDGE IS THE BEST MEDICINE

Catherine Smith (27) is a surgeon at the local hospital. Before starting her daily rounds, she uses her work computer to check her patients' current state of health. One of them has a complex rib fracture. Catherine takes a last look at the X-ray before picking up her tablet and setting off. At the patient's bedside, Catherine signs in via the browser with her smartcard and PIN, and the tablet brings up the same image she was looking at on her computer. However, Catherine can only access confidential information while within the hospital campus, safeguarding patient privacy.

HOT DESKING IN THE SALES DEPARTMENT

As a sales rep, James Hart (45) is something of a road warrior – out and about like most of his colleagues. That's why his employer decided that the sales team, with a headcount of 60, needed only 40 physical desks. Each is equipped with the same hardware: a screen, a keyboard, and a thin client. The thin clients are connected to a data center, which provisions all data and apps. When James goes into the office, he simply pulls up the nearest chair and powers up a thin client – and sees the same user environment, whatever desk he's at.

NO NEED FOR EXPERT HELP

Just before a virtual meeting with a supplier, development engineer Christian Scott (29) decides to install Microsoft Lync. He has a few minutes, so he accesses the Dynamic Workplace self-service portal, and installs the newest version. The latest version of the program launches right on time at noon, along with his engineering software. He shares his screen with the supplier, and they discuss the component with the help of 3D images.

LESS STRESS FOR ADMINISTRATORS

IT professional Dave Higgins (54) used to feel the heat when the HR people announced the imminent arrival of new staff. It was quite a challenge to install all the necessary hardware and software in time, especially as user requirements varied from department to department. But now Dave can keep his cool – the virtual desktops are provisioned from the data center within just 24 hours, with a single click on the self-service portal. All Dave and his colleagues have to do is to tailor the virtual desktop to the user's specific needs by putting together the ideal combination of standardized modules, including collaboration and voice applications.

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Scan for more information or visit
www.t-systems.com/dynamicworkplace

Collaboration between Google and T-Systems

GOOGLE – OUR NEW PARTNER.

A yellow box to separate the wheat from the chaff. The Google Search Appliance is an internal search engine for enterprises to streamline their workflows. This is set to be the first of many successful collaborations between Google and T-Systems.

<Copy> Laura Hamdorf

T-SYSTEMS HAS ENTERED STRATEGIC partnerships with many leading names, and has consistently combined IT products such as cloud resources from HP or VMware, software from Microsoft or SAP, and web services from Cisco or Amazon. The Deutsche Telekom subsidiary uses this experience and its relationships with other providers to create vendor-neutral technology packages, tailored to customers' needs.

T-Systems' ongoing search for more and better enterprise-scale solutions has led to collaboration with Google. And it has already installed Google Search Appliance (GSA) for several of its corporate customers. GSA is an internal search engine that can be adapted to individual businesses, delivering seamless searches and rapid access to relevant information.

A small yellow box is installed in the customer's data center – and that's the only hardware needed. Not only is it quick to implement and simple to use, but GSA enables businesses to search their data in a structured way, without the need to connect to Google. It can trawl through intranet sites, integrated SharePoint platforms, and data in the cloud. And what are the business benefits? GSA indexes data, so that the search works even if information is distributed across a number of systems.

GSA's ability to sort through metadata, recognize entities, and search dynamically through a wealth of jumbled information

overcomes many traditional search engine problems. And because the search engine runs in a web browser, it is available on smartphones and tablets as well as desktop PCs. Staff can also add results to a search, to help their colleagues find what they are looking for quicker than ever. GSA integrates all relevant content sources, prevents unauthorized access, and defines user rights. This ensures that the search is secure and data is protected. But employees are not the only ones who benefit: by integrating this Google search solution into their website, enterprises can provide their customers with fast, accurate results – improving the user experience.

T-Systems is currently looking into expanding this partnership to include "collaboration applications such as Google Apps for Business, including Gmail and Google Drive, the Chrome Internet browser, and Google's Geo Tools. In fact, at the moment we are testing these services for their enterprise-readiness, security, and suitability for our customers," explains Alexander Drechsler, Head of Enterprise Portals and Search Technologies at T-Systems Multimedia Solutions.

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<Link> google.com



Federal Printing Office

BOLSTERING DEFENSES AGAINST THE DIGITAL TSUNAMI.

Distributed denial of service (DDoS) attacks are coming thick and fast, taking advantage of organizations' reliance on Internet connectivity. To create stronger defenses against this ongoing onslaught, Germany's Federal Printing Office (Bundesdruckerei) has chosen to outsource its IT security operations.

<Copy> Roger Homrich

ALL WEBSITES, BLOGS AND ONLINE SHOPS are vulnerable. Hackers bombard web servers with requests for information, until the site is paralyzed. And the process is faster and more potent if the requests come from computers scattered around the globe. Even the best firewalls stand little chance against this type of DDoS assault.

HIGH SUCCESS RATE, LOW PRICES

According to the German Federal Office for Information Security (BSI), the number of DDoS incidents recorded in 2013 was significantly higher than in the previous year. And as IT security analysts at Pierre Audoin Consultants (PAC) reveal, there are 1.4 successful attacks on average per enterprise, per week worldwide. The resulting downtime causes economic damage equivalent to an average of 7.2 million US dollars per year and company. "And we only expect the number of DDoS attacks to continue rising," remarks BSI President Michael Hange. This can be traced back to the high success rate of this form of cybercrime, not to mention the fact that hackers can be booked for a relatively low price. Their services start at as little as a few hundred euros.

"Because producing identity documents involves sensitive, personal data, we've always protected our systems with a variety of security solutions," emphasizes Holger Rieger, Head of IT Security at the Federal Printing Office. These include firewalls, tunneled connections, and cryptography. Since the introduction of the e-passport in 2005 and new machine-readable German ID cards in 2010, the application process has been digitized – making it vital for the office to be online at all times. "Where required, we can issue passports within 48 hours – but only if we have 24/7 availability. As we look to expand our portfolio of full ID management solutions and products, this will only become more important," explains Rieger.

FIREWALLS FALL SHORT

The need to guarantee around-the-clock availability, and the increasing likelihood of a DDoS strike, led the Federal Printing Office to beef up their online security. "Combatting DDoS attacks

is particularly challenging – the firewall recognizes the infiltration, but its only option is to shut everything off. It cuts all Internet connections and the web servers go down," explains Jürgen Schoolmann, Director of IT at the Federal Printing Office. "This protects the website, but it doesn't really help us. It severely restricts our work for hours on end, or, in the worst-case scenario, even days."

DDoS hackers have a variety of motives: blackmail, revenge for perceived wrongs, and attempts to undermine the competition can all be on the agenda. And these criminals will stop at nothing – not even at NATO. An attack in late March 2014 took several of the organization's sites offline for a number of hours. The Ukrainian hacker group Cyber Berkut claimed responsibility. Their goal? To get "NATO cyber bandits to leave Ukraine immediately".

At the same time, gaming giant Blizzard was struggling with a huge wave of attacks on its servers, resulting in disruptions to play and angry online gamers across the globe. Community Manager Nidrorian issued an apology, explaining, "Over the course of the last week, Diablo III, World of Warcraft, StarCraft II, and Hearthstone players may have been impacted by high latency and disconnections during their gaming experience that are the result of a series of DDoS attacks on certain European Internet service providers."

But what if all systems are go and attacks are still getting through? "We needed a way of stopping potential threats before they even reached the firewall. So the next logical step was to go to our Internet provider – T-Systems," explains Schoolmann. Deutsche Telekom operates its own dedicated Cyber Defense Center. Its tasks include monitoring all data traffic on the backbone network – in order to recognize and respond to dangers before they reach customers' firewalls.

T-Systems now examines all network traffic to the Federal Printing Office, checking for anomalies and filtering out any suspect data streams before they can cause a problem. Holger Rieger compares their service to a tsunami warning – only he says it's even better: "It's not just that T-Systems knows a monster wave is about to hit the coast and warns us – they can actually



By order of Friedrich II

Around 250 years ago, Friedrich II of Prussia granted Georg Jacob Decker the privilege of carrying out all of the court's printing. This was the birth of the state Federal Printing Office. Today, it continues to print bank notes and stock certificates, and has established itself as an international provider of solutions for secure identification, issuing electronic ID cards and passports and EU driving licenses from Berlin.

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security.t-systems.com



stop the wave altogether or at least reduce its impact." This kind of service is not available off the peg: an extensive analysis of "normal" network traffic is essential. Rieger continues: "A regular flood is nothing like a tsunami – but the flood looks different for each company." The Federal Printing Office, for example, tends to experience the highest volume of traffic when local government offices for address registration and passport applications are open. And the data comes from German servers – whereas DDoS attacks make use of computers around the world.

IT SECURITY AS A SERVICE

The Federal Printing Office might look for external support when it comes to fending off DDoS attacks, but entering into a full

outsourcing agreement remains out of the question for Jürgen Schoolmann. "It's important for companies to work out their own IT security management process, and then they can add the specific services they require."

As Ovum analyst Andrew Kellett notes, managed services are particularly effective when they improve on conventional security systems. He outlines: "Security risks are continuously evolving, and at a rapid pace, too. This makes it extremely difficult – or even impossible – for most organizations to keep up. Companies benefit from being part of a community that discovers and exchanges information on new dangers early. They can then deal with the problem before it can develop into a serious threat."

Q&A

"STAY UP-TO-DATE WITHOUT BELIEVING THE HYPE."



Mr. Glanz, you aim to be an IT leader within your industry – how do your customers benefit?

Our financial advisors offer very customer-centric consulting and support. We aim to provide them with tailor-made, innovative IT solutions so that they can give clients the best possible advice, anytime, anywhere. And that in turn secures our competitive advantage.

You turned the iPad into a sales tool for your financial advisors almost as soon as it had come onto the market. Why was that?

That was in 2010, and we were the first company in Germany to do it. Now, we use over 12,000 devices for mobile data and office management. Possibly the greatest advantage of the iPad becomes clear during consultations: it has over fifty modular applications that make the whole experience more user-friendly and interactive. And unlike a laptop, it doesn't create a physical barrier between the customer and the advisor. Instead, it actively encourages client participation.



In your opinion, which technical inventions are the best and worst of all time?

Almost every invention is seen as indispensable by some and as useless by others. Taking into account the breakneck pace of innovation – especially in technology – my philosophy is stay up-to-date without believing the hype for every new product.

If you had a time machine, what period would you travel to?

Back to 1959, which was the only year that Frankfurt has ever won the German soccer championship – so I could attend the match.

You invite people over for a four-course dinner: what do you cook?

I'd rather leave the cooking to the others and get the barbecue going!

DVAG was recently named "Germany's most customer-driven service provider in 2014".

What do awards mean to you?

We are always pleased to have independent experts confirm our success. But for us, the real reward comes from knowing that our six million customers are satisfied with our services. That's the real proof that we continue to do good work – prizes can only speak for a particular point in time. I find the company motto especially inspirational: 'We don't think in terms of quarterly reports – but in terms of whole generations'.

Résumé

Christian Glanz has been CIO of Deutsche Vermögensberatung (DVAG), a financial planning services company, since 2010. Previously, he was the founder and CEO of software company compeople.



Eurowings

ONE FOR ALL.

Eurowings' 800 employees now have access to a central intranet system where they can check the status of runways or aircraft, see delays, read instructions, and view information on payroll accounting and training. In the past, ground staff relied on a portal called iBase, while cabin and flight crew used FlyBase. Now, T-Systems subsidiary T-Systems Multimedia Solutions has consolidated both systems onto a single platform. As a result, the Lufthansa airline only has one set of data to maintain. The new intranet portal boasts a highly granular user- and role-based design that grants

access to content according to target group. And if they wish, staff can use the system remotely via a web-based virtual private network. Moreover, T-Systems Multimedia Solutions has developed applications for the iBase content management system. Via Flight Safety Reporting, for example, Eurowings' employees can confidentially and securely submit suggestions for improvements or reports to air traffic control.

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Linde Material Handling

THE APP FOR GOLD-STANDARD CUSTOMER SERVICE.

When material handling systems and forklift trucks break down, it costs money and leads to dissatisfied customers. As a result, it is vital to secure replacement components and call in a service engineer as quickly as possible to limit downtime. For this very reason, Linde Material Handling, a leading manufacturer of warehouse systems and forklift trucks, has opted to deploy T-Systems' Arrival Control app to enhance its customer service processes. The app keeps customers informed on the ETA of their component and service engineer. In fact, they can track their exact location on a map – accessed via a link that Arrival Control sends by text message or email. There is no need for the customer to download the app – they simply open the map in their smartphone, tablet, or desktop PC's web browser. In the future, Arrival Control will support the component ordering and repair processes – both highly automated. The app will capture error codes, transfer them to back-end systems, and initiate the order process. What's more, the customer will receive real-time updates on the status of the service job.

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Dr. Carlo Velten,
Senior Analyst
and Managing
Director, Crisp
Research.

Three questions

THE ULTIMATE GOAL OF ANY DIGITAL TRANSFORMATION IS ZERO DISTANCE.

What skills do IT providers need to avoid the pitfalls of digital transformation?

More than anything else, providers require specialist knowledge of integration – when it comes to processes, applications and data. In this regard, IT players who have the skills to support digital transformation end to end are at a clear advantage. Only they are capable of effectively protecting their clients from siloed solutions, by understanding how changes in the front end can impact the back end.

What should businesses pay attention to?

It is very important that providers have experience with operating hybrid IT and cloud environments. Interface management and performance play a decisive role when it comes to using business-critical processes in conjunction with multiple public cloud services.

Which providers have the edge right now?

T-Systems is among the heavyweights when it comes to digital transformation, and I would definitely consider them an early adopter. What I really like is that, alongside the usual buzzwords, this Deutsche Telekom subsidiary has come up with its own concept; zero distance really captures the central idea behind digital transformation. The ultimate goal is quite simply customer centricity.

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Market studies

NEW RESEARCHFORYOU APP.

Market studies are a great way to keep up-to-date with the fast-changing ICT industry, offering in-depth insights into the newest solutions and technology trends. T-Systems provides this valuable source of information to its customers in an easy-to-access format at www.researchforyou.eu. Over 900 downloadable studies from leading analysts are available free of charge – Forrester, IDC, PAC and Experton are just some of the big names. Registered users can follow the latest developments in mobile solutions, cloud computing and the automotive industry, and stay on top of the most recent IT security risks. ResearchForYou (R4U) minimizes and simplifies research, saving valuable time.

R4U already has 1,600 business users who regularly access the market research database via an Internet portal. And for iPad owners, a dedicated R4U solution is available on the App Store. Once installed, it's extremely easy to use: you can enter keywords via the full-text search, or narrow down searches using categories such as issuer, product, industry and country. Once studies have been downloaded, they can be viewed offline. And because T-Systems understands the importance of data protection, anyone who wants to deregister can opt to have all their personal data deleted.

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Circuit training

HANDS-ON SECURITY.

Theory never sticks in anyone's mind: if you want to remember something, you have to try it out yourself. This is the principle behind T-Systems Security Parcours workshops. They keep T-Systems employees and customers up-to-speed on important security issues – in a fun and memorable way. Teams have ten minutes to complete tasks related to topics such as password hacking and social engineering. They are given a score, and the best team at the end of the session receives an award. Security Parcours has been attracting significant interest, and participants are impressed. As one attendee stated, "This isn't just theory, it's hands-on security – it's something that really stays with you."

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New evidence management system

DIGITIZED CRIME FIGHTING IN BAVARIA.

Crime investigators are often faced with an overwhelming volume of evidence – in major cases, dozens of buildings may have been searched, and thousands of objects taken into custody. Each item has to be precisely labelled and recorded to ensure all evidence is easily traceable should it be required in court. Until now, police officers in Bavaria had always keyed in this data manually. This was inefficient and time-consuming, with information often being stored in multiple systems. Against this backdrop, Rola Security Solutions was tasked with developing an IT-supported evidence management solution to streamline processes, and to avoid mistakes and duplications.

The IT solutions provider, based in Oberhausen and acquired by T-Systems in early 2014, produced the first viable version of the rsEvid® program in 2010. The Bavarian police department implemented the solution under the name SpAss in November 2012, and now almost all tasks are supported by this sophisticated electronic evidence management system. When rolled out throughout Bavaria, SpAss will have approximately 30,000 users.

Instead of making manual notes in an evidence log book, officers can now transfer digital records directly from the case processing system (IGVP) to SpAss. Once captured, data can



be utilized for a variety of tasks, including printing labels for exhibits. Having printable labels and an automatically generated audit trail simplifies the process of sending evidence to other police units. All users can access data with point-and-click speed and simplicity. They can track the item's status and location, issue requests for forensic examinations, view expert witness submissions, generate crime-scene reports – and much more.

T-Systems has expanded its portfolio of security solutions for the public sector with the acquisition of Rola Security Solutions. In addition to rsEvid®, offerings are available for police case processing, the armed forces, and tax investigation authorities.

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Healthcare

A SECURE CLOUD SOLUTION FOR DOCTORS AND HOSPITALS.



First comes the patient, and then come the medical records – on paper, and often days later. Even in the era of electronic communication, this is still a daily reality in Germany. Yet applications from the cloud could mean change is on the horizon. However, data privacy regulations in the healthcare sector are extremely strict. As part of the German Ministry for Economic Affairs and Energy's research project, Tresor, T-Systems and its partners are developing a platform that will allow hospitals, doctors and laboratories to securely and reliably access and combine cloud services from various mid-size providers. T-Systems supplies the infrastructure for the solution, encrypts the data, and connects a variety of IT systems. Once the user's identity has been confirmed, the hospital can send medical records confidentially, securely – and electronically. This means that doctors can prepare their patients' treatment before they arrive at the hospital or the office. "This year, our partner hospitals will be testing an application that checks for allergies when prescribing medication," reveals Torsten Frank, CEO and project coordinator at medisite. In the future, this could become an additional feature of the platform solution developed under the Tresor project.

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App Fabric AaaS solution

SECURELY DEVELOP AND UPGRADE APPLICATIONS IN THE CLOUD.

User departments need new applications for a wide range of purposes – from customer portals and CRM solutions to production control and PLM. And they need them fast. Thanks to T-Systems' App Fabric platform, IT professionals can fulfill their internal customer requests in a matter of hours – straight from the cloud. App Fabric includes application-as-a-service (AaaS) and platform-as-a-service (PaaS) offerings. If an organization elects to migrate to this highly advanced platform, existing applications are first assessed for cloud readiness. If they pass the test, they are transferred straight away, without modification; if not, they are upgraded and re-engineered. Entirely new applications are cloud compatible from the get-go – and either developed to address a specific need or rented off-the-peg.

App Fabric is based on open standards such as OpenShift and Cloud Foundry. It leverages T-Systems' global VMware vCloud infrastructure. And diverse cloud models, such as public, private and hybrid are all feasible. Services are charged on a pay-as-you-go basis – leading to savings of between 20 and 30 percent. A test platform is currently under construction.

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Zero Outage

A SHARED GOAL: ZERO ERRORS.



Three years ago, T-Systems launched its Zero Outage program, aimed at eliminating all errors. It can be compared to what soccer managers, in Brazil and elsewhere, call 'Keeping a clean sheet'. Dr. Ferri Abolhassan, Director of Delivery at T-Systems and German national team goalkeeper Manuel Neuer discuss what it means to strive for perfection – and what it takes to build an impenetrable defense.

Mr. Neuer, how important is it to keep clean sheets in soccer?

Manuel Neuer: Attacking wins you games, but defending wins you championships. Simply put, the team that scores the most goals doesn't necessarily win titles – it's the team that concedes the fewest that makes it. That's what it comes down to.

And what role does the team play; the collective spirit?

Manuel Neuer: In contrast to the 1970s and 1980s, all players now need to track back and contribute to the defense. It's critical to the team's success – every player needs to show they can defend as well as attack. We managed to strike this balance at Bayern Munich last season – and this season, we've taken the philosophy a little further. It sounds like a cliché, but it's truer than ever: a strong team ethic is the key to success.

Dr. Ferri Abolhassan: It's the same for us. Our employees are at the heart of our Zero Outage program. Just like in soccer, everyone plays their part – and we all need to know what our colleagues are doing. We are investing in skills development and certification – our equivalent of soccer training sessions, if you like. And like Bayern Munich, we strive to be top of our league. But we must all do our best every single day to turn this ambition into reality.

It's not always possible to avoid mistakes. After a run of good results, is it easy to become complacent?

Manuel Neuer: As a goalkeeper, I aim to keep a clean sheet in every single match. I owe it to the club, its supporters and shareholders to ensure that happens. It's also what I expect from myself and my teammates. It obviously makes a difference if you've already achieved your target – such as when we won the German championship weeks before the end of the season – as opposed to being in the midst of a fight for the title. You can pause to catch your breath, but only when the moment is right; in other words, when doing so won't have any consequences.

Dr. Ferri Abolhassan: Our aim is to ensure seamless operations for our customers – at all times. We also demand this of our suppliers, so that we can offer the same quality of service all over the world. The underlying philosophy is that we want all of our services and technological innovations to be online at all times – in other words, with zero downtime. To make this happen, we employ 20,000 certified members of staff and deploy 24 twin-core data centers. This guarantees 99.999 percent availability for our IT operations. We simply cannot afford to be careless; doing so could prove expensive for us if, for instance, an automotive manufacturer were to be hit by hours, or even days, of production-line downtime due to an IT failure.

Automotive

MAINTENANCE, DEVELOPMENT, SYSTEMS INTEGRATION.

T-Systems has signed a long-term contract worth a nine-figure sum with automobile manufacturer Daimler. This is one of the largest systems integration deals the Deutsche Telekom subsidiary has ever won. The scope of the agreement includes maintenance, development, and integration of a large number of applications in all key units and departments. The main focus will be on innovation, particularly in areas such as in-car connectivity and cloud-based workplace services. "Daimler has partnered with us for many years, and the trust they display in our organization underlines that the company is very satisfied with our services – that's why they will continue to work hand-in-glove with us," emphasizes T-Systems CEO Reinhard Clemens. T-Systems has successfully provided the auto giant with systems integration services for many years.

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**Digital Transformation Summit**

PLACES ON THE GUEST LIST FOR T-SYSTEMS CUSTOMERS.

This coming fall, the Digital Transformation Awards, endorsed by German Minister for Transport and Digital Infrastructure Alexander Dobrindt, will be presented in Berlin in recognition of outstanding efforts in digital transformation – in both the public and private sectors. "The prizes aim to both showcase lighthouse projects that exemplify best practices and to set landmarks en route to enhanced innovation and competitiveness," explains Roland Tichy, Editor-in-Chief of the weekly German business magazine *WirtschaftsWoche* and one of the judges. T-Systems has reserved five places on the guest list of the high-profile Digital Transformation Summit for its customers.

Enterprises have been able to submit entries to earn the title of "digital innovation leader" since early 2014. The Digital Transformation Awards are conferred by *WirtschaftsWoche* in conjunction with T-Systems and consulting companies neuland and Booz & Co. "Adapt or die" is how IT pioneer Karl-Heinz Land describes the hard, unyielding law of the marketplace. "As in evolution, when technology and society change more rapidly than businesses can adapt, not all of them will survive," he says. That's why examples of best practices are so important to the industry.

The winners are selected by a panel of judges comprising business leaders, academics, politicians and media representatives – and T-Systems' Director of Sales Hagen Rickmann. They will evaluate the submitted projects using an array of criteria, such as their innovation potential and whether they exploit cutting-edge technologies to penetrate new business fields.

If you'd like to attend the 2014 Digital Transformation Summit as a T-Systems customer, simply email the editor of Best Practice for your chance to secure one of five places on the guest list.

<Contact> bestpractice@t-systems.com

<Link> [www.dt-award.de \(only available in German\)](http://www.dt-award.de)

PLEASE MOVE ON!



Cartoon: George Riemann



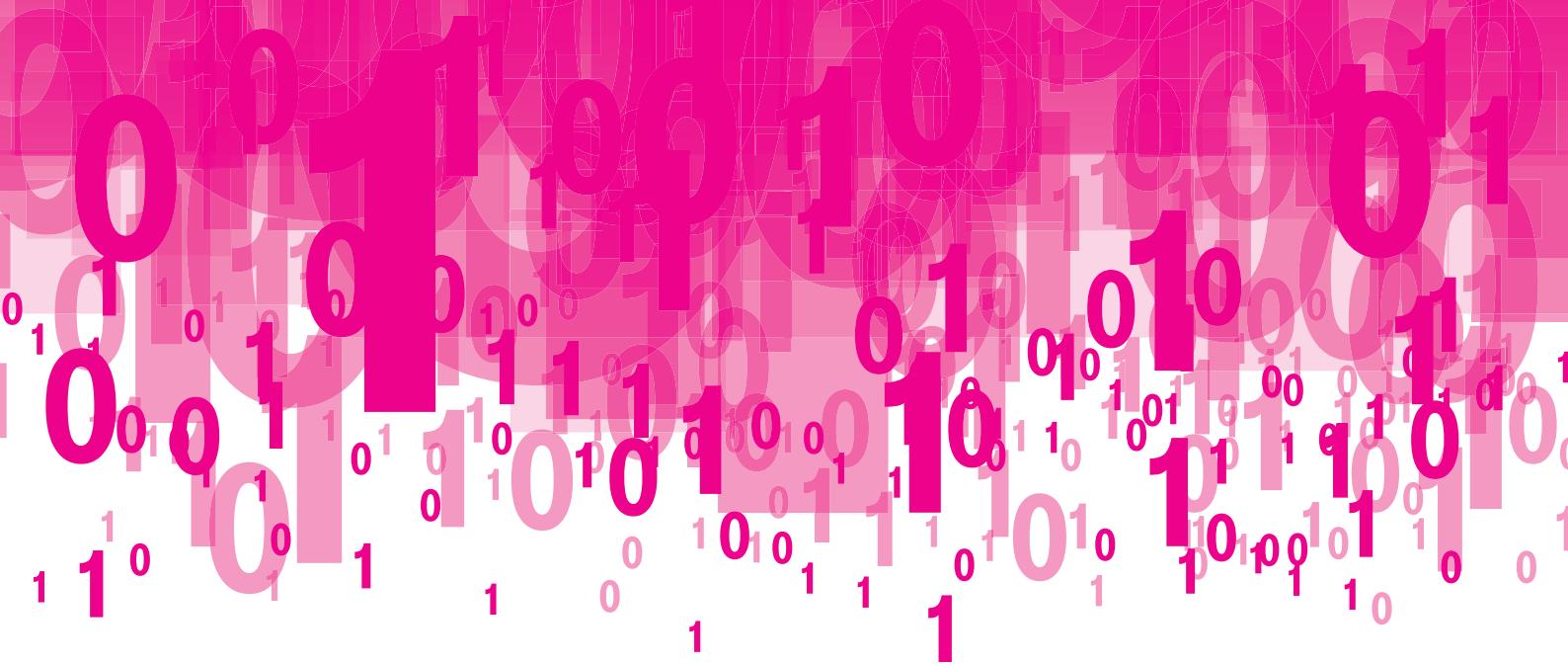
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