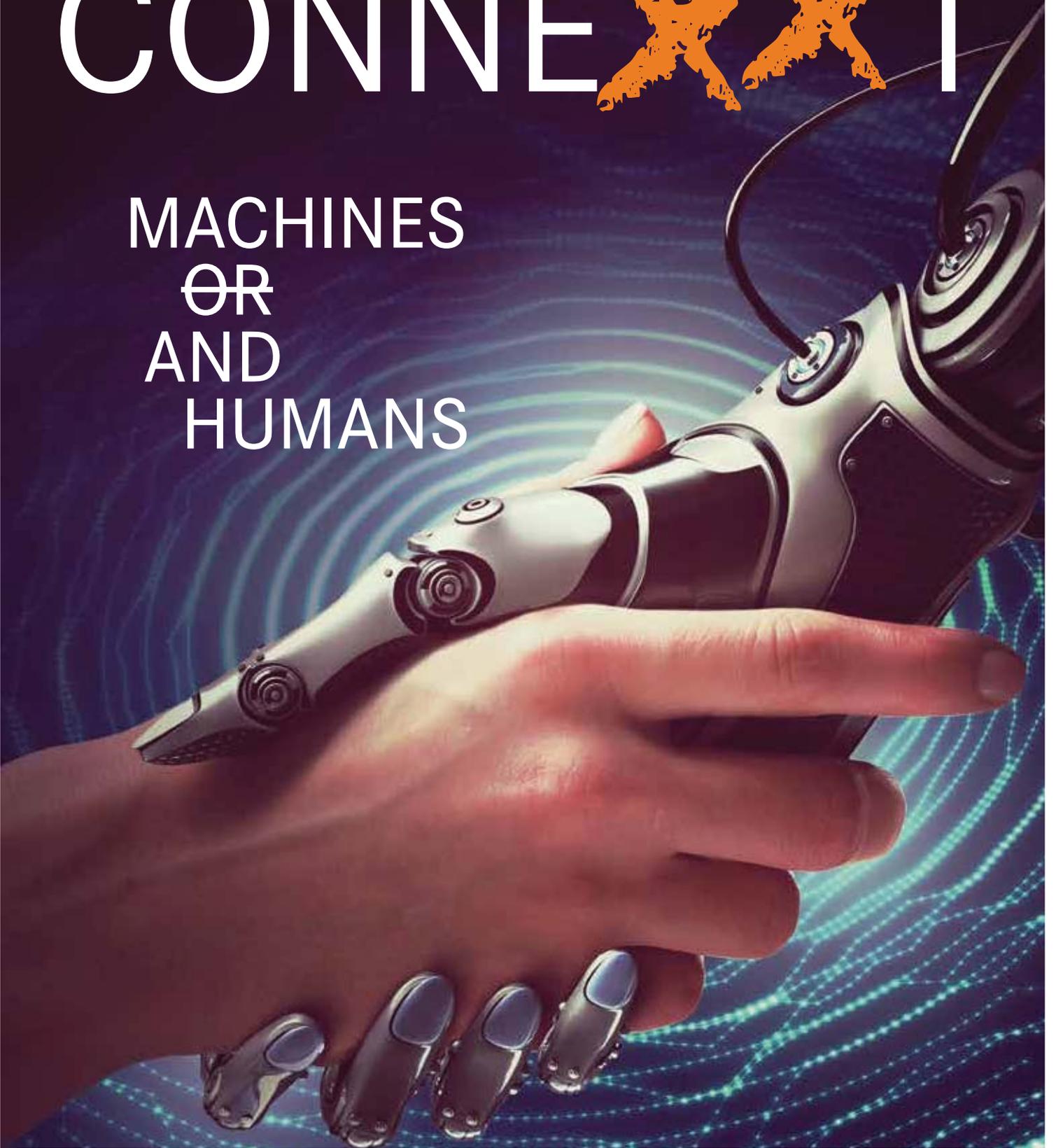


MAGAZINE # 01

# CONNEXXT

MACHINES  
OR  
AND  
HUMANS



**TALKING**

How humans and machines interact

**HARD-WORKING**

How the modern home can help you out

**PLAYING**

How virtual reality is becoming reality

**FLOWING**

How material flows efficiently





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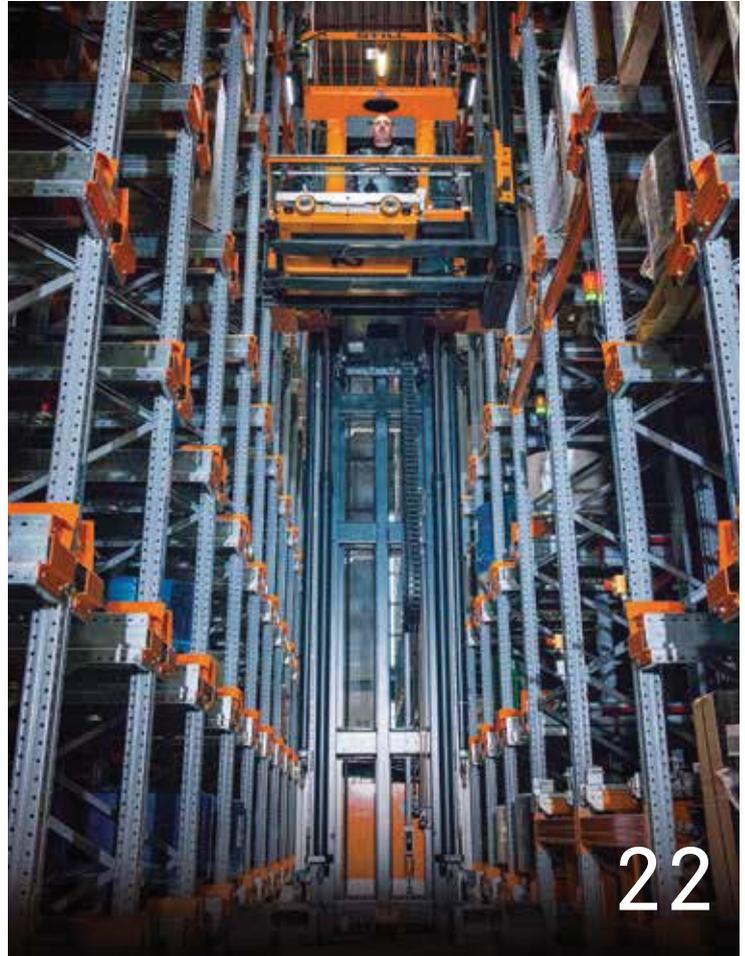
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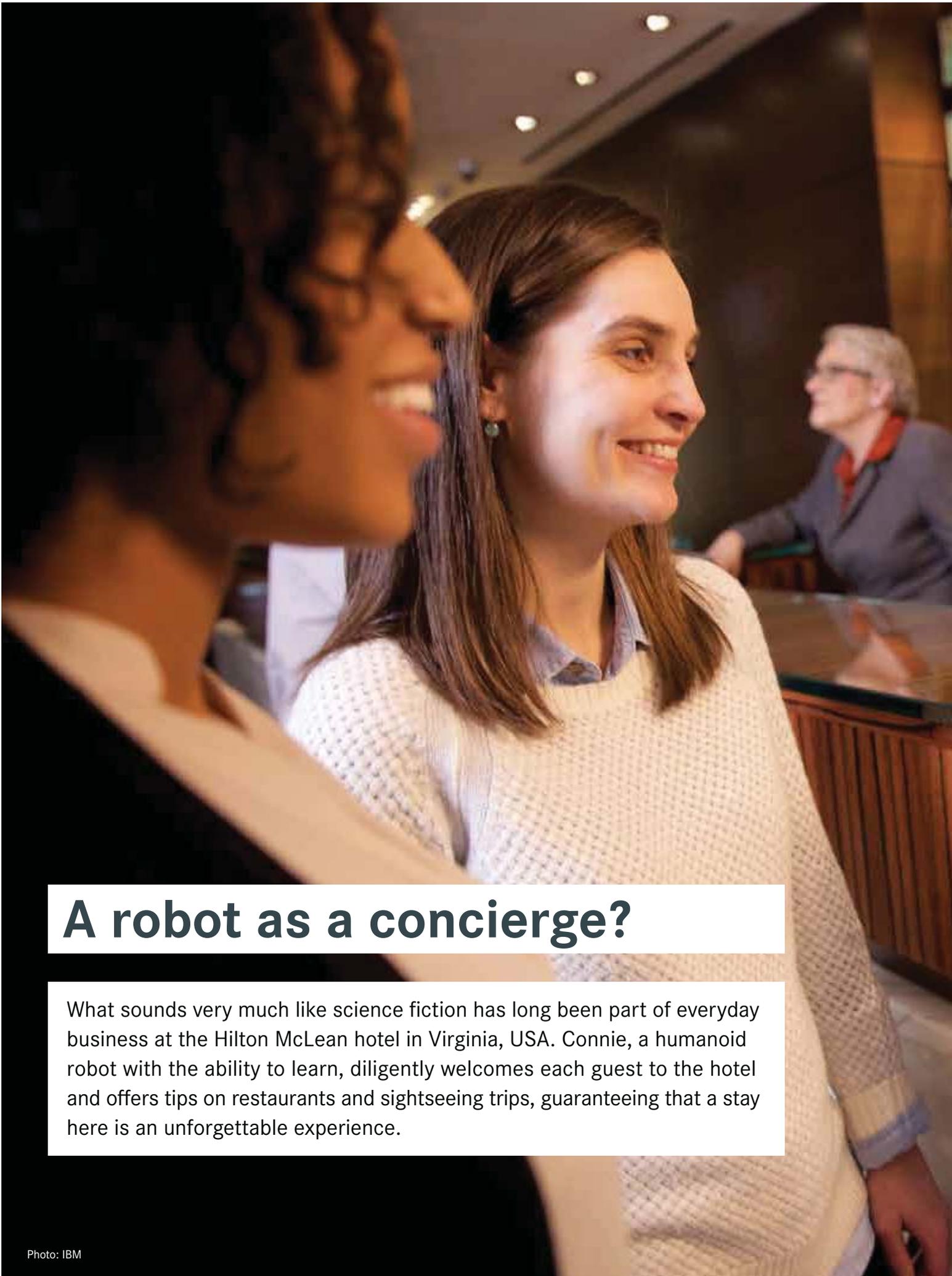
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## A robot as a concierge?

What sounds very much like science fiction has long been part of everyday business at the Hilton McLean hotel in Virginia, USA. Connie, a humanoid robot with the ability to learn, diligently welcomes each guest to the hotel and offers tips on restaurants and sightseeing trips, guaranteeing that a stay here is an unforgettable experience.



# NEWS

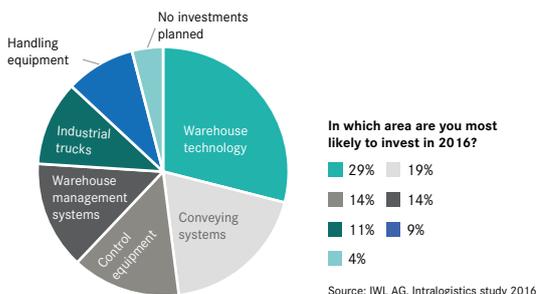


## RESEARCHERS PRESENT DEMONSTRATOR TRUCK WITH TEXTILE-THERMOPLASTIC CONSTRUCTION

A technology demonstrator will be presented at the Hannover Messe trade fair for the first time in 2016. It has been constructed using a textile-thermoplastic design and is the result of 12 years of research. Researchers from Collaborative Research Centre (CRC) 639 “Textile-reinforced composite components for function-integrating multi-material design in complex lightweight applications” which was set up by the German Research Foundation (DFG) have been working with new types of textile composites since 2004 and have incorporated all of their findings in the demonstrator. This work has culminated in the development of a commercial truck with a modern design for urban, local and intra-company transport. The utilisation of the textile-thermoplastic technology developed by CRC 639 has given rise to the demonstrator vehicle’s lightweight design and high degree of functional integration.

## THE FUTURE IS ELECTRIC

While everybody is talking about electromobility, STILL GmbH is taking it to the next level. STILL will be showcasing warehouse technology systems, tow tractors and the first counterbalanced forklift truck with lithium-ion batteries during CeMAT 2016 in Hanover at the STILL Pavilion. The forklift truck manufacturer aims to offer 90% of all STILL trucks with lithium-ion batteries by 2017. In doing so, STILL will be able to provide its customers with a technology which, according to Fraunhofer ISI, has great potential over the next two decades for further development in terms of both cost reductions and energy density. In order for STILL customers to reap the rewards of this battery technology in the best way possible, the company provides comprehensive advice on lithium-ion technology at the forefront of its services in addition to its range of lithium-ion products which has been extended quite significantly.



## INTRALOGISTICS: A POSITIVE OUTLOOK FOR THE FUTURE

According to a recent study commissioned by IWL AG, a consultancy company specialising in logistics based in Ulm, Germany, Industry 4.0, robots and personalisation are the trending topics for the intralogistics industry in 2016. A total of 88 intralogistics companies took part in the annual market survey. Many of the operators, consultants and manufacturers who were questioned are looking forward to the future with great optimism and are even planning to commit to further capital expenditures following a successful financial year in 2015. 44% of participants see great potential in Industry 4.0 in particular, whilst 24% consider this area to be pivotal for future trends. The personalisation of logistics services is another area which is going from strength to strength with its value-added services and the use of robots to pick orders. The majority of participants also anticipate further growth in 2016 (74%). 29% are intending to invest in warehouse technology, with only 4% not planning on investing anything at all this year.

## 4G SUCCESSOR ON THE WAY

It's been six years since the first LTE network (4G) was launched in Germany, marking a new milestone in mobile communications technology. Although we are still far from exhausting all of the possibilities which 4G LTE can offer even now, there are already plans in the pipeline for its successor. "5G", as it will be known in short, is expected to blow everything that has gone before it out of the water and, for example, offer data transfer speeds several times faster than the current LTE networks and be able to cope with a greater number of users per cell. In addition, users will only experience minimal latency, enabling lightning-speed responses whilst on the network and requiring less energy in doing so. A key figure involved with the development of the successor to 4G is Chinese telecommunications company Huawei.



## 500,000TH FORKLIFT TRUCK ROLLS OFF THE PRODUCTION LINE IN HAMBURG

A particularly notable chapter of history was written in Hamburg on 27 January 2016 as the 500,000th counterbalanced forklift truck from STILL GmbH rolled off the production line, marking yet another milestone on the road to success for the specialists in intralogistics based in northern Germany. Thomas A. Fischer, Managing Director of STILL GmbH, personally delivered this special anniversary forklift on-site to Chemion Logistik GmbH in Leverkusen, Germany, a company with which STILL has enjoyed a partnership spanning almost 40 years. 770 forklift trucks under the STILL brand already form part of Germany's largest fleet of explosion-proof forklifts, but the anniversary truck, a STILL RX 60-25 electric forklift truck, is a different creation altogether. "We are looking forward to making history together with STILL and continuing to build on our already invaluable partnership," says Frank Orth, Head of Logistics Services at Chemion Logistik GmbH. "With partners such as STILL, we are able to competently and reliably meet the high standards which our customers demand from us."





# Humans and machines

**THERE HAS BEEN CONSIDERABLE CHANGE** in the way humans and machines interact with each other over the past few years and the future looks set for this trend to continue at an even greater pace. But should we be worried about this or take it all in our stride?

By uttering the voice command “Computer, put it on screen,” Captain Kirk, commander of the legendary Enterprise space shuttle, could display a variety of objects on a large screen on the command deck, including alien planets, incoming “calls” and mysterious space stations. This is just one of the many examples of how screenwriters from what is probably the most famous science fiction series imagined what the future of communication between humans and machines would look like all those years ago. It’s as simple as saying “computer”, adding the command and then seeing it happen: the holodeck starts the selected simulation, the lift goes to the requested floor or the space shuttle accelerates to the desired speed, “Computer, warp five. Power!”

## THE FUTURE IS NOW

However, being able to issue voice commands is no longer a distant dream of the future. If you’ve ever asked your iPhone “Hey Siri, will I need an umbrella this afternoon?” or said to your smartphone, “OK, Google, take me to the nearest cinema,” then you will have been given prompt assistance by a rather charming voice and visualisations on the display. It’s already long been possible to control lighting, roller shutters and your heating using voice commands. In short, the way in which we communicate with machines has radically changed over the course of the past few years. In fact, thanks to the digital revolution, it has even reached a level, at least in some areas, that science fiction authors could only fantasise about.

## THE OPERATING REVOLUTIONS

Monochrome monitors and keyboards were the order of the day back when digitisation was still in its infancy. In 1984, the first computer with a mouse as its primary input device appeared on the market – the Apple Macintosh. Admittedly, designs incorporating mouse control had been around for a long time before this, but Apple was the first company to make this appeal to the mass market, ultimately revolutionising the way we now interact with computers. Apple managed a similar feat in 2007 with its smartphone: The iPhone was the first mobile phone with a multi-touch display and it set a new operating standard. The extent to which such “multi-touch gestures” have now become second nature to us, as well as how intuitive they seem, becomes very clear indeed when young children sit down to read a magazine and attempt to enlarge the images with their thumb and index finger. In addition to this new operating paradigm, the whole way in which humans co-exist with machines is given a completely new sense of direction with the use of microphones, cameras, datagloves, RFID chips and a multitude of sensors which are embedded in a diverse range of specialist equipment.



Google is developing an autonomous car which is currently being tested in the USA and which will turn the driver into a passenger.

### AUTOMATIC MOBILITY

Mobility is one aspect of human-machine interaction which affects us all. It represents a key necessity for us to be able to take part in everyday social life. The ever increasing extent of networking between vehicles, infrastructure and humans is making it possible to open up and develop entirely new services and products within this sector. Car sharing, whereby we activate our cars for use with our smartphones or a smart card, is just the tip of the digital iceberg in this respect. Due to the fact that 90% of all road traffic accidents can be attributed in some way to human error, the development of partially automated, or even fully autonomous, vehicles is currently underway at full speed. The assistance systems on the market today are able to keep track of the distance to the vehicle driving in front, control the speed, keep a vehicle in its lane and intervene if the driver unintentionally departs from the lane it was in. Self-parking cars are now also a mass-produced reality.

### MY CHAUFFEUR, THE COMPUTER

Whilst the decision-making authority in partially automated vehicles remains with humans, the vision of achieving completely autonomous mobility, where humans are mere passengers, is inching ever closer to the realms of reality. One such example of this is Google's remarkable success in developing its own autonomous car. Their self-driving car is even roaming the streets of California to carry out tests. According to the documentation provided by Google, there were just 69 incidents over the 680,000 kilometres driven as part of the tests where a human had to actively intervene because the built-in technology failed to assess a traffic situation correctly. In February of this year, the US National Highway Traffic Safety Administration (NHTSA) said that computers will count as drivers.

### MY HOUSE IS SMARTER THAN YOURS!

The massive impact that human-machine interaction is also having on our private lives is highlighted by the rapid development in what are known as smart homes. Whilst it has been possible to control lighting, heating systems and private security technology using apps and voice

commands for some time now, current research projects are taking this to yet another level. Such projects have brought to life creations like "Jibo", a social robot for the home, which communicates with the family in an authentic, human and charming manner thanks to facial expression, tone and speech recognition technology. Jibo doesn't look much like a human (it doesn't have any arms or legs) and actually rather resembles a desktop lamp as a rotating sphere with a screen is mounted on a cylinder with a stand. In a sense, the screen is Jibo's face. Jibo uses its integrated camera to determine which family member it is communicating with and adjusts its behaviour accordingly. During video calls, the camera will follow the person speaking who is then free to move around as they wish whilst still remaining in view of the camera. And if that isn't enough, Jibo can also read stories to your children, remind you about events and take family photos. This robot for the home, financed by crowdfunding, is due to hit the markets later this year.



Cynthia Breazeal invented social house robot "Jibo" and raised more than half a million dollars via crowdfunding to finance the project.

Photo: Jibo, Inc.



HRC (human-robot collaboration) systems are big news in the world of robotics. This image shows the PART4you system used by car manufacturer Audi: a robotic arm passes the required tools and other items to workers. Photo: AUDI AG

### AUGMENTED REALITY

Another major topic for the evolving communication between humans and machines serves as a link between private life and industry: augmented reality. Google Glass and Microsoft HoloLens are two well-known examples of data goggles which are soon to be released and which will enhance our field of vision with digital projections. Architects will be able to project a 3D model of the plans for a new building onto a table, engineers will be able to immerse themselves in a virtual world of the cylinders and gear wheels of a newly developed engine, whilst doctors will be able to dissect a virtual heart.

### I SPY WITH MY LITTLE EYE...

The potential for augmented reality technology is tremendous, especially in terms of order picking operations. A large proportion of warehouses around the world still pick orders using lists printed out on paper despite the fact that paper-based approaches are, by nature, more likely to be inaccurate and take a longer time to complete. Renowned companies such as KNAPP, SAP and Ubimax are currently testing systems based on data goggles which are capable of real-time object recognition, reading barcodes and providing indoor navigation as well as connecting to local warehouse management systems. By using a system of this kind, warehouse operatives are able to project a list of goods as well as the optimum path through the warehouse directly onto their field of vision. The items to be picked can be visually highlighted and the system can automatically save information on everything that is picked. Field tests have revealed that the error rate can be significantly reduced in this way. Implementing this technology can also have huge benefits when it comes to planning the ideal warehouse infrastructure. Projecting various warehouse designs into an empty warehouse and walking around it as if they were real is absolutely no problem for the existing technology, so there is no need to wait for anything else to be developed.

### MACHINES OR HUMANS?

Whenever intelligent machines, automated systems and autonomous vehicles are mentioned, the question that is often raised is whether these types of machines will eventually replace us humans. In some areas at least, this may well turn out to be the case. One example of this is Schunk GmbH, a manufacturer of clamping and gripping technology, where a robotic hand is currently being developed which is sensitive enough to operate a rechargeable drill. However, examples like this

are more uncommon than you would perhaps think. Many experts believe that there will be no threat to the existence of the more than 180,000 industrial workers employed in Germany alone throughout this transition which is taking place.

### “NO DESERTED FACTORIES”

Most industrial workers will continue to have a job and this is a point which experts from the world of science are all quite confident about. “Deserted factories are part of a vision which simply won’t come true,” emphasises Josephine Hofmann in an interview with German daily newspaper Der Tagesspiegel. Amongst other areas, Hofmann is conducting research at the Fraunhofer Institute for Industrial Engineering and Organisation into the flexibility of the working world. Service providers working at their PCs and in their offices have been affected by changes imposed on them over a long period of time; similar changes will now also start to have an impact on industrial workers. As is the case in both scenarios, the working environment will adapt and it will be people who are the driving force behind this: “Jobs will be lost, but at the same time, new ones will be created. There will also be new professions in the future which we haven’t even heard of yet,” the researcher explains.

### MACHINES AND HUMANS!

Far from casting us aside, machines will actually complement humans and provide us with support in a significantly increasing number of areas. Industry insiders see the next revolution of robotics in HRC systems. HRC stands for human-robot collaboration and more and more sectors within the industry, but above all the automotive industry, are turning to a new form of collaboration between humans and machines. Audi, for example, has an HRC system called PART4you, which consists of a robotic arm which passes the required parts and tools to workers.

### OUTLOOK FOR INTRALOGISTICS

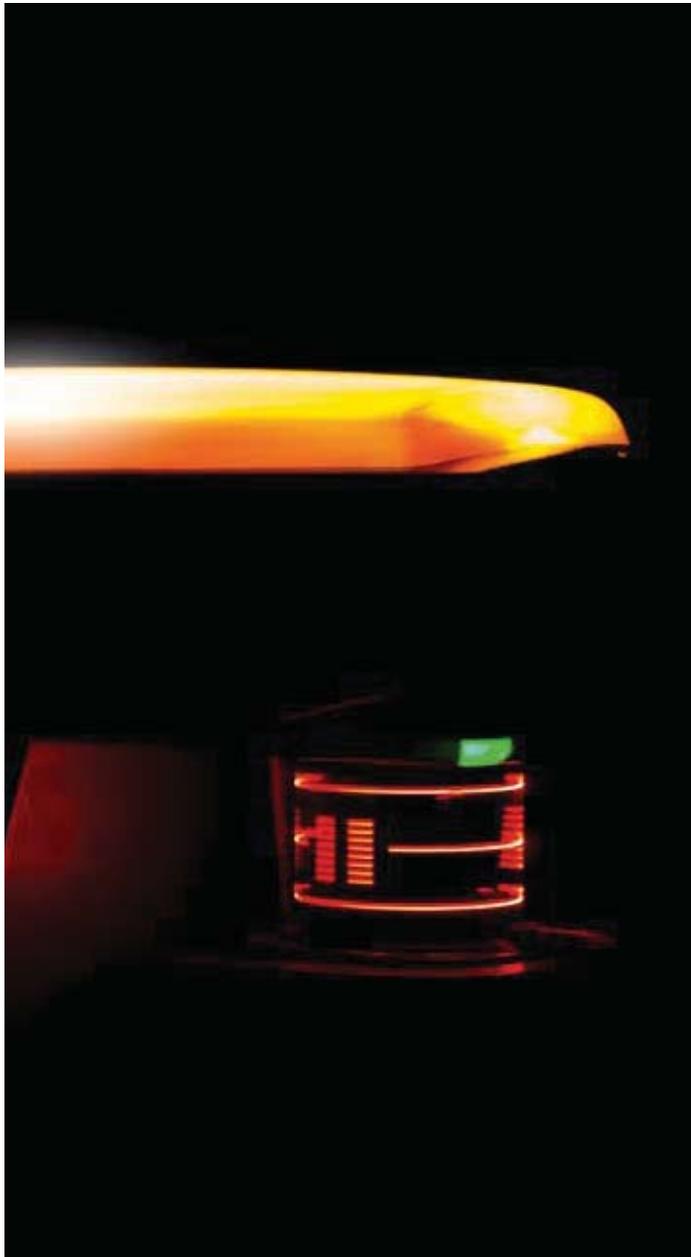
As a global player in the industry, it is only natural for STILL to be pondering the question of how humans and machines can work together in the future world of intralogistics. In fact, it forms a central aspect of the concept vehicle STILL cubeXX, which was first presented back in 2011. One of its features is that it is an incredibly versatile and flexible industrial truck which can be operated both manually and automatically and can transform itself into various types of truck. The truck can be operated with an iPad when under automatic operation. Due to the fact that these tablets are relatively delicate and flimsy devices to face the sometimes harsh conditions of everyday life in a warehouse, STILL brought the Fraunhofer Institute for Material Flow and Logistics (IML) on board as a partner. Researchers at the institute developed the coaster – a robust operating unit about the size of a beer mat with tangible buttons which have a pressure point that can be clearly felt. This enables the coaster to be operated even if the user is wearing gloves.



With its cubeXX concept study first presented in 2011, STILL set the course for Industry 4.0 within intralogistics.

### STILL IGO EASY

You don't need to look to the future at STILL to find innovative and novel means of communication between humans and industrial trucks. The STILL iGoEasy system which was introduced to the market in 2011 is the first automation solution in the world for straightforward and standardised orders for an individual truck which enables full configuration, control and monitoring to be performed using an iPad. And further still, the system can be installed independently and adjusted at a later point in time to meet new general conditions. iGoEasy consists of an EGV-S pallet stacker equipped with automation components, reflectors and an iPad alongside the specialised iGoEasy system. The reflectors are installed along the desired routes and are read by the iPad using the iGoEasy app. Following this stage, automated transport can be initiated at the press of a button. Front and rear cameras transmit the view of the route to the virtual cockpit in the app, whilst important information, such as the remaining battery life, speed and transport orders, is clearly displayed in various infographics.



With the iGo neo CX 20, STILL is transforming order pickers into autonomous partners. For more information go to: [www.still.de/neo](http://www.still.de/neo)

### THE IGO NEO CX 20 USHERS IN NEW ERA

The latest product launch by STILL goes one step further than this. In terms of the partnership between humans and machines, STILL has raised the bar to reach heights never seen before with the iGo neo CX 20, which was presented to the public for the first time at the LogiMAT trade fair in Stuttgart. It is the first order picker which recognises its operator and independently follows him or her through the warehouse. If the operator slows his or her walking pace down, the iGo neo CX 20 will also slow down accordingly. If other people walk in front of the truck's digital eyes, it is able to differentiate between them and its operator. This ultimately prevents the iGo neo from suddenly following the wrong person. For the operator, this type of autonomous technology means no longer having to constantly get on and off the forklift truck to move it just a few centimetres forward at a time. It is also no longer necessary to control the truck with remote controls or datagloves. The forklift truck is able to think as one with the operator, following him or her around autonomously.

### A FUTURE WITH REAL POTENTIAL

It would seem that the future of collaboration between humans and machines lies in such a partnership – in both our private and professional lives. It's true that communication between humans and machines has changed and that it will continue to do so at breakneck speed. It's also perfectly human to react to such changes with a certain degree of scepticism. Nevertheless, there is strong evidence to suggest that the future of humans and machines involves working together and not against one another. This means working together as part of a cooperation which has a whole host of fascinating possibilities in store for us – whether it's in order picking or in your very own voice-operated home.

### AUTOMATED, AUTONOMOUS –WHAT'S THE DIFFERENCE?

It's quite the question! Even though there are often differences in how these terms are used, there are actually no precise definitions for them in relation to forklift and industrial trucks. In fact, many economic dictionaries even list the two terms as synonyms. Within the intralogistics sector, automation mostly refers to systems which bring about an automatic movement of goods whilst sticking relatively closely to specific general conditions. If these conditions change, humans will need to intervene and make the appropriate changes. On the other hand, autonomy is, for example, when a truck completes a task automatically and autonomously, i.e. independently, determines its own route, taking into consideration the current conditions. An example is the way in which the iGo neo CX 20 recognises unexpected obstacles and drives around them to follow its operator.



## “IT WILL BE CONSIDERED COMPLETELY NORMAL TO COMMUNICATE WITH SHELVES IN FIVE YEARS’ TIME”

**Prof. Michael ten Hompel, Managing Director at Fraunhofer Institute for Material Flow and Logistics, answers questions on the interaction between humans and machines as part of Industry 4.0.**

### **WHAT KIND OF IMPACT IS THE FOURTH INDUSTRIAL REVOLUTION HAVING ON THE INTERACTION BETWEEN HUMANS AND MACHINES?**

Things will start to make their own decisions. The warehouses of the near future will see humans, machines and items all interacting with one another within a sort of social network. This will throw an entirely new light on how humans and machines collaborate. We will be dealing with autonomous systems which will automatically contact us. This type of autonomous behaviour is really at the heart of the revolution.

### **WHAT SORT OF DECISIONS DO YOU MEAN SPECIFICALLY?**

Imagine, if you will, an order picker who has just picked a box and then discovers that a part is missing. At this point, he must now decide whether the box should go out as it is or whether it's worth waiting for the missing part to arrive. Up until now, the employee would have had to ask his colleagues. But in the future, he will be able to ask the shelves whether the part has already been re-ordered. The shelves will in turn ask the fleet of trucks to give exact details about when the part will arrive. This will enable the employee to obtain the information he needs to make his decision.

### **WOULD YOU IDENTIFY ORDER PICKING AS AN AREA WITHIN LOGISTICS WHICH CAN BENEFIT FROM A CONSIDERABLE AMOUNT OF ADDED VALUE BY MAKING USE OF AUTONOMY?**

Yes and that is in fact the case right now. It's exactly what STILL has introduced to the market with the iGo neo. For me, it's the perfect example to show where this journey is heading. The forklift truck recognises its operator and follows him or her here, there and everywhere without the need to dig any guidance strips in the ground or carry out any

similar work. This autonomous manner of driving whilst following a human is Industry 4.0 in its purest form.

### **IF WE REGARD THE FOURTH INDUSTRIAL REVOLUTION AS A JOURNEY, WHERE DO YOU THINK WE ARE ON THIS JOURNEY AT THE MOMENT AND HOW FAR HAVE WE STILL GOT TO GO TO REACH OUR DESTINATION?**

The fourth industrial revolution was proclaimed five years ago at the Hannover Messe trade fair. From experience we know that this kind of revolution takes ten years before it reaches its ultimate conclusion. This means we are right in the middle of this one. I firmly believe that it will be considered completely normal to communicate with shelves in five years' time. But whether they actually talk back is, of course, an entirely different matter (he laughs). At the same time, we will continue to see even smarter driverless transport systems and, in this respect, it's not an exaggeration to say that STILL is leading the pack by some way.

### **WHAT ROLE WILL SOFTWARE HAVE ALONG THIS JOURNEY?**

An all-important one! Whole new business segments will be opened up within the logistics sector in relation to software and apps. If you don't have an app, you won't be doing business! That is perhaps being a little too black and white but it clearly highlights how we see things.

### **WHAT NEEDS DOING MOST URGENTLY TO ENSURE THAT WE CAN LOOK BACK ON A TRULY REVOLUTIONISED INDUSTRY IN FIVE YEARS?**

It all revolves around being able to uncover opportunities which can meaningfully make use of the new technologies and developments whilst also creating added value. It will be of crucial importance to bring products onto the market which have an immediate and clear benefit for users. One thing is certain: completely new business models will come into existence.

# What are robots allowed to do?

**EVEN TECHNOLOGY NEEDS LAWS** – Author Isaac Asimov and his guidelines for robots

**I A**  
**02/01/1920**  
**06/04/1992**  
**ISAAC ASIMOV**

**“VIOLENCE IS THE LAST REFUGE OF  
 THE INCOMPETENT”**



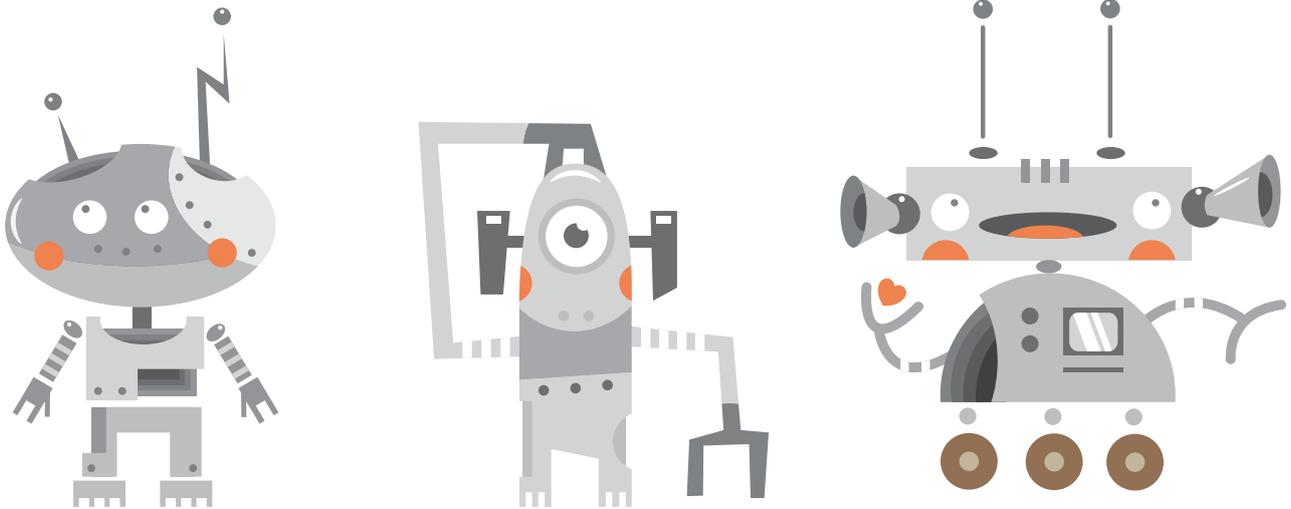
It will soon be a question we face every single day: Who is responsible if a Google driverless car crashes into another driverless car? It was more than 70 years ago that the first novel to give some answers to the question of what robots are allowed to do and what they're not was published. The author was Isaac Asimov. He was born on 2 January 1920 in Petrovichi, Russia, close to the city of Smolensk. He was three years old when his parents emigrated to the USA. In 1958, he decided to pursue a career as a writer. His "Foundation" trilogy series, set in the very distant future, became a bestseller and made the author famous. As part of this series, he laid down the Laws of Robotics:

- 1. A ROBOT MAY NOT INJURE A HUMAN BEING OR, THROUGH INACTION, ALLOW A HUMAN BEING TO COME TO HARM.**
- 2. A ROBOT MUST OBEY THE ORDERS GIVEN IT BY HUMAN BEINGS EXCEPT WHERE SUCH ORDERS WOULD CONFLICT WITH THE FIRST LAW.**
- 3. A ROBOT MUST PROTECT ITS OWN EXISTENCE AS LONG AS SUCH PROTECTION DOES NOT CONFLICT WITH THE FIRST OR SECOND LAWS.**

In the novel "Galactic Empire", which was published later, Asimov had a robot add an additional law itself – this is what is known as the "Zeroth Law of Robotics": "A robot may not harm humanity, or, by inaction, allow humanity to come to harm." This "zeroth" law outranked the other three laws according to the author. Asimov's ideas act as a sort of guiding principle in the area of artificial intelligence, even for today's developers. Blockbuster movie "I, Robot" starring Will Smith is based on a story created by Asimov and places the significance and limitations of the Laws of Robotics right at the centre of the action. Lawyers at the German Federal Ministry of Transport are currently working on draft legislation which is intended to prevent algorithms from creating their own legal system. Computers, and therefore autonomous vehicles, are to be prohibited from having algorithms which weigh up the lives of human beings against damage to property which would go against Asimov's Laws. After all, a robot can only act in the way it has been programmed to act. A robot can go through thousand of options in just a few milliseconds and then carry out the pre-programmed action. People, however, interpret the rules according to each situation and act, in the best case scenario, in an ethically correct manner. The development of an ethical machine would really be the final triumph for artificial intelligence.

# The first step is always the hardest

**THE ROBOTS ARE ON THE RISE** – but they’re sometimes quite clumsy too



A frequent discussion nowadays is whether or not we should consider robots achieving world dominance to be a real and imminent danger. But before things could actually reach such a point, our occasionally clumsy metallic comrades would have to overcome an almighty evolutionary hurdle.

The attempts which various robotics projects are making are sometimes quite bizarre and yet sometimes incredibly impressive. Just keep reading here to find out more about some of the weirdest robots on the planet. Even if some men may not agree, putting on makeup is not just a process of simply applying cosmetic products to a certain area. The perfect makeup application actually requires the user to have a real appreciation for aesthetics and empathy for the person the cosmetics are being applied to. This is something which scientists from Austria had to learn the hard way after they had a makeup robot attempt to apply lipstick. The robot did admittedly complete its task with exceptional precision, however, it didn't quite match the test subject's individual face. This meant that the result was unfortunately more suited to a circus than a



Razor-sharp look: the katana long sword requires the utmost precision.

catwalk. In other areas, state-of-the-art industrial robots have proven to be impressively precise, provided that they have the right teacher. A Japanese technology group programmed one of its robots to mimic the movements of sword master Isao Machii using motion capture technology. Equipped with a katana sword, the robot sliced bamboo canes with terrifying precision.

## ROBOTS WITH A REPERTOIRE OF JOKES

Even the hotel and catering industries experimented with mechanical employees at an early stage. In 1983, as home computers first found their way into private households, the guests at a Californian fast food restaurant were already being served by two robots acting as waiters. Although they dropped one or two trays, they had a few jokes up their sleeves to amuse their guests to make up for it. Although both of them have since gone into "retirement", the idea that robots can be used to look after guests continues to be very much alive today. A Japanese hotel, for example, is managed (almost entirely) without humans. Whether it's at the check-in desk or when help is needed with carrying luggage, this hotel located at a theme park has put its faith in robots. It's only the beds which are still made by human employees, because the machines can't do this part (yet).

So, as you can see, the point in time when robots will actually be able to take over the planet is still a long, long way away. Until then, these machines will most likely still have to pay for their ticket in economy class, just like Athena, a robot developed by the Max Planck Institute, who flew in the cabin from Los Angeles to Frankfurt.

# Really, really smart

**YOUR OWN FOUR WALLS ARE INTELLIGENT** – that is, if you're the owner of what is known as a smart home system. Thanks to the latest technology, such systems enable devices to communicate with each other and to complete everyday chores automatically. Not only does this offer a more comfortable lifestyle at home, it also means fewer orders for your pizza delivery service.



It's Friday and you've made it through yet another long working week. In an ideal world you just want to kick back and relax. Unfortunately, the fridge is empty, your flowers are wilting and looking sorry for themselves, and the washing is piling up in the bathroom. OK, so, what do you tackle first? How fantastic would it be right now if everything could just take care of itself? How about if the fridge could automatically refill itself as soon as the last product was taken, if plants watered themselves and if the washing machine could just switch itself on? Imagine your favourite TV channel switched on ready for when you get home with the lights dimmed and the room at the perfect temperature for you to relax.

## The future is now

Is this just the fantasy of a stressed-out employee? Absolutely not! What at first has all the hallmarks of an idyllic vision of the future actually already found its way into the modern home some time ago. This trend is referred to as the "smart home" and it's where all of the different areas within a house or apartment are networked and automated using the latest technology. The smart home lends its occupants a hand and supports them in day-to-day tasks, working quietly away in the background. Whether it's controlling the room temperature by automatically switching the heating on and off, opening and closing the blinds depending on how sunny it is outside or switching on the lights when somebody enters the room, the smart home is geared towards enhancing your comfort of living, improving energy efficiency and providing greater security. Smart homes are controlled centrally using devices such as smartphones, tablets and even computers. With the use of specially designed apps, the networked devices can be operated manually or set up in such a way that you give your smart home part of the responsibility for deciding what to do. It could decide, for example, where light is needed, which rooms should be aired or what the ideal temperature for the bathroom is. And if the forecast is for rain, it will close all the windows. If the smart home comes across an error, it will either find a solution itself or notify



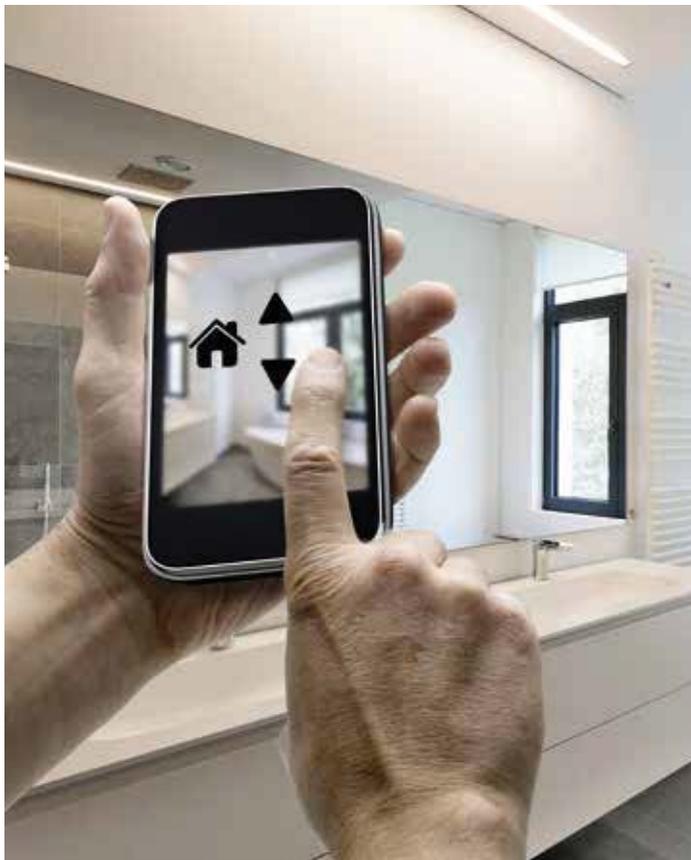
The smart home's control centre: the smartphone.

its occupant who can then easily access the system from a device, take a look at all the data provided by the house and amend anything as necessary.

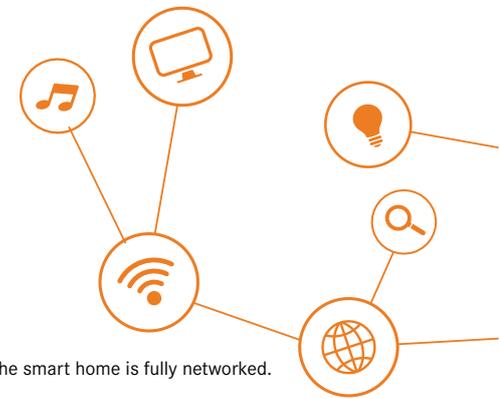
## A whole new world of living comfort

When it comes to security, the smart home can offer a new experience of living comfort. Whilst away from home, you'll often be worried about whether your worldly possessions are sufficiently protected at home. A smart home can offer clever and rather comforting solutions in this respect: Setting the blinds to open on a timer or switching lights on and off depending on the time of day can make it seem to any potential burglars that occupants are still at home as normal. However, in the event that a burglar does make it into the four intelligent walls of your home, the smart home has a solution ready for this too. It won't just notify the owner, it will also automatically turn on the lights in every single room. That will be enough to terrify any thief!

Alongside the major topic of security, living comfort is also considered an essential concern in smart homes. This doesn't necessarily always have to mean having an all-encompassing solution where all your devices are networked together. Sometimes it's enough to just have a vacuum cleaner which automatically cleans your apartment, or perhaps a coffee machine which wakes you up with freshly brewed coffee. For newcomers to this subject who want to find out more about the topic of smart living, there are plenty of solutions which are simple to operate and which will



Perfectly clear: Control your blinds with an app or set them to operate automatically with a programmed schedule.



make them want to discover even more! Less than EUR 50 will buy you a smart plug socket which will allow you to control your washing machine from your smartphone and regulate your energy consumption, for example. You could even network your household goods with an Amazon Dash Button which will enable you to reorder specific goods at the press of a button when they have run out.

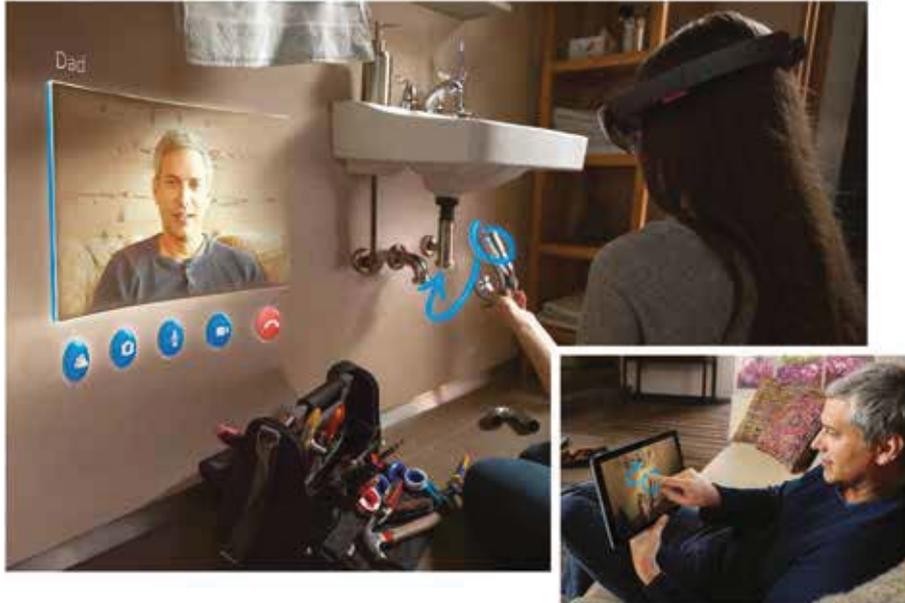
## Be smart too and research

There are smart home solutions for every aspect of your life within the four walls of your humble abode. The trend has picked up speed and isn't stopping for anyone, not even German manufacturers. An increasing number of smart home systems with ever more sophisticated functions are conquering the market and offering solutions which are making smart living a reality in the simplest ways possible. However, it's exactly this level of variety which is currently causing some problems, particularly for some manufacturers. Whilst manufactures such as Deutsche Telekom are delivering open smart home solutions, i.e. solutions which are compatible with a whole array of smart home systems, some service providers are offering what are known as proprietary systems. These are closed systems that are tied to the respective manufacturer. In terms of smart living, this places great restrictions on the possible solutions and creativity.

It is therefore advisable to do your research and to consider from the outset what you want your own smart home to look like. You can only find the right smart solutions for you if you know exactly what you need. This will act as the initial building block upon which you can add further layers to create your very own smart home. And don't bother calling your pizza delivery service on Friday evenings in future – simply call your fridge instead.

# Experience the future

**VIRTUAL REALITY** – 2016 is the year in which virtual reality (VR) will become a reality for the consumer market. In addition to the entry-level solutions already available on the market, it is predominantly down to three sets of VR goggles from major companies who look set to make the breakthrough in virtual reality.



Digital assistants – Microsoft HoloLens will make DIY more like child's play as tips from an expert or Dad will simply be projected into the field of vision. Photo: Microsoft

## OCULUS RIFT – THE HYPE STARTER

It's what created all the hype about virtual reality technology in the first place. Back in 2013 when it was launched as an ambitious Kickstarter project, Oculus Rift didn't just get members of the public talking, it also stimulated great interest from Facebook boss Mark Zuckerberg. He bought Oculus VR, the company behind the goggles, in 2014 for around USD 2 billion and its market launch is now just around the corner. Some of the first products are already being delivered to those who have pre-ordered. Although at some EUR 740 (including delivery) the price is around twice as high as originally stated, the goggles come with a controller and two computer games so you can immerse yourself in virtual worlds as soon as the product lands on your doormat. What's more, users will be very impressed with the high level of comfort when wearing the goggles, the integrated headphones and what is probably the most extensive

software line-up right out of the box as developers have been able to get to grips with developer kits from an early stage in the product's development. Two OLED displays, each with a 1080 x 1200 pixel resolution, are used in the interior of the goggles (see the "How does virtual reality work?" box).



## HTC VIVE – THE SENSORY EXPERIENCE

HTC, in collaboration with software company Valve, has developed the HTC Vive which differs from the Oculus Rift in two essential areas, namely the controller design and its lighthouse sensors. In basic terms, the Vive's controllers are comparable with the motion control featured in Nintendo's well-known Wii console. There is an input device for each hand and the goggles don't just register the buttons which are pressed – the movement of the controllers, and therefore the hands of the user, is registered as well.

Both lighthouse sensors which are placed in the room and the front camera of the goggles create an even greater feeling of immersion, so the user feels more strongly that they are part of the virtual world. This combination allows the user to move freely around a pre-defined space in the room whilst the boundaries of these defined safe surroundings

are blended in as a graphic within the virtual world. In all other respects, the Vive's specifications are largely the same as those of the Oculus Rift. Pre-sales of the HTC Vive started at the end of February, with the price set at USD 799. The VR goggles are set to be delivered from April.



### SONY PLAYSTATION VR – THE COUCH POTATO

As the third largest manufacturer, Sony is stepping into the ring with its PlayStation VR (PSVR). These goggles are also scheduled to come out later this year. Although the price is not yet fixed and the image resolution is a little lower than the Rift or Vive at 1080 x 960 pixels, Sony still has a few trump cards up its sleeves.

The best one is probably the price for the hardware which is needed to use the goggles. Whilst both the Oculus Rift and the HTC Vive require a high-performance PC costing around EUR 1000, the PSVR only needs a PlayStation 4 costing EUR 300. Admittedly, the console does offer a lower level of performance than a high-end PC, which is why many PSVR games appear to be slightly less sophisticated than those for the Vive and Rift. However, as it still looks great and adds great entertainment to VR games, even if the graphics are less impressive, the lower hardware power doesn't necessarily go against the PSVR.

The PSVR can recognise hand movements thanks to the Move controller already out for the PlayStation 4, whilst the PlayStation camera can track the position of the head and convey this in the virtual world using LEDs mounted on the goggles. Sony's VR goggles are due to hit the market in the second half of 2016. Their price hasn't yet been confirmed but it won't exceed the cost of the console, which will quite significantly undercut the two biggest competitors.

### SAMSUNG GEAR VR – THE SMART ONE

A relative cheap step into the world of virtual reality which has been around on the market for some time is offered by Samsung with its Gear VR, which was developed in collaboration with Oculus VR. The Gear VR costs EUR 99 and comes without a display which is where your smartphone comes into play, as it is placed in a specially designed slot on the goggles. The VR experience can be improved by additional sensors for recognising head movements. It doesn't quite match up to that feeling of being right in the thick of it which the Rift, Vive and PSVR do offer, but it's still enough

to mesmerise the user. There are, however, two drawbacks with the Gear VR. Firstly, the goggles are only compatible with Samsung's high-end smartphones, starting from the S6 generation, and the Note 5. Secondly, it's missing – at least for the time being – apps which will keep the user interested and keen to come back for more over a longer period of time. However, the software can be controlled more easily than is the case with the competition thanks to the touchpad which is mounted on the headset.

### GOOGLE CARDBOARD

One thing is for sure: The true fascination with virtual reality can only be understood by those who have experienced it first-hand. Google provides the cheapest solution by far that allows users to at least be able to get a sense of this potential with its product Cardboard, the second version of which has recently been released.

You may not get a proper VR experience with it but it does only cost around EUR 15. Cardboard is made of a piece of cardboard shaped to form a cover with two lenses. Similar to Samsung's Gear VR, a smartphone is then placed in the cover to act as the display. Although the operating options, image quality and wearing comfort are all rather limited, it's EUR 15 well spent to get your first impression of virtual reality.

### HOW DOES VIRTUAL REALITY WORK?

VR goggles display an image to each eye. These images are generated by software which splits the output image into two images and re-shapes them ever so slightly so that your brain perceives both individual images to be three dimensional. Depending on the VR goggles in question, various technologies register the position of the head, meaning that the user is free to look around the virtual world.



# The smart way

**STILL IGO NEO CX 20** – It takes the interaction between human and machine to an unprecedented level: The iGo neo CX 20 autonomously follows its operator through the entire warehouse which enables a picking performance that is up to 30 per cent higher.



## SAFETY:

Safe  
autonomy

Thanks to a multi-stage safety package the operator and colleagues can remain

cool at all times – the iGo neo CX 20 drives around non-critical obstacles (e.g. static objects) fully automatically. It stops before crossing aisles and does not cross them until instructed to do so – accidents with other traffic participants are excluded.

The iGo neo always complies with the required safety distances in the rack aisle.



## COMPACTNESS:

Small truck,  
great performance

The iGo neo CX 20 is perfectly suited for optimal utilisation of the available warehouse area – particularly in tight working areas and narrow aisles the intelligent warehouse partner is able to fully exploit its strengths thanks to its compact dimensions.

It has hardly seen the light of day and the iGo neo CX 20 has already been awarded first prize. “Best product” at the LogiMAT trade fair in the category of “Picking, conveying, hoisting and warehousing technology”.





## PRECISION:

### Precision landing

The 360° motion sensor follows events at a rate of 84 000 scans per second – even if there is increased traffic volume in the warehouse, the iGo neo CX 20 never loses sight of its user. In addition, the automatic rack spacing compliance ensures maximum freedom of movement and a relaxed picking experience.



## POWER:

### Efficiency boost

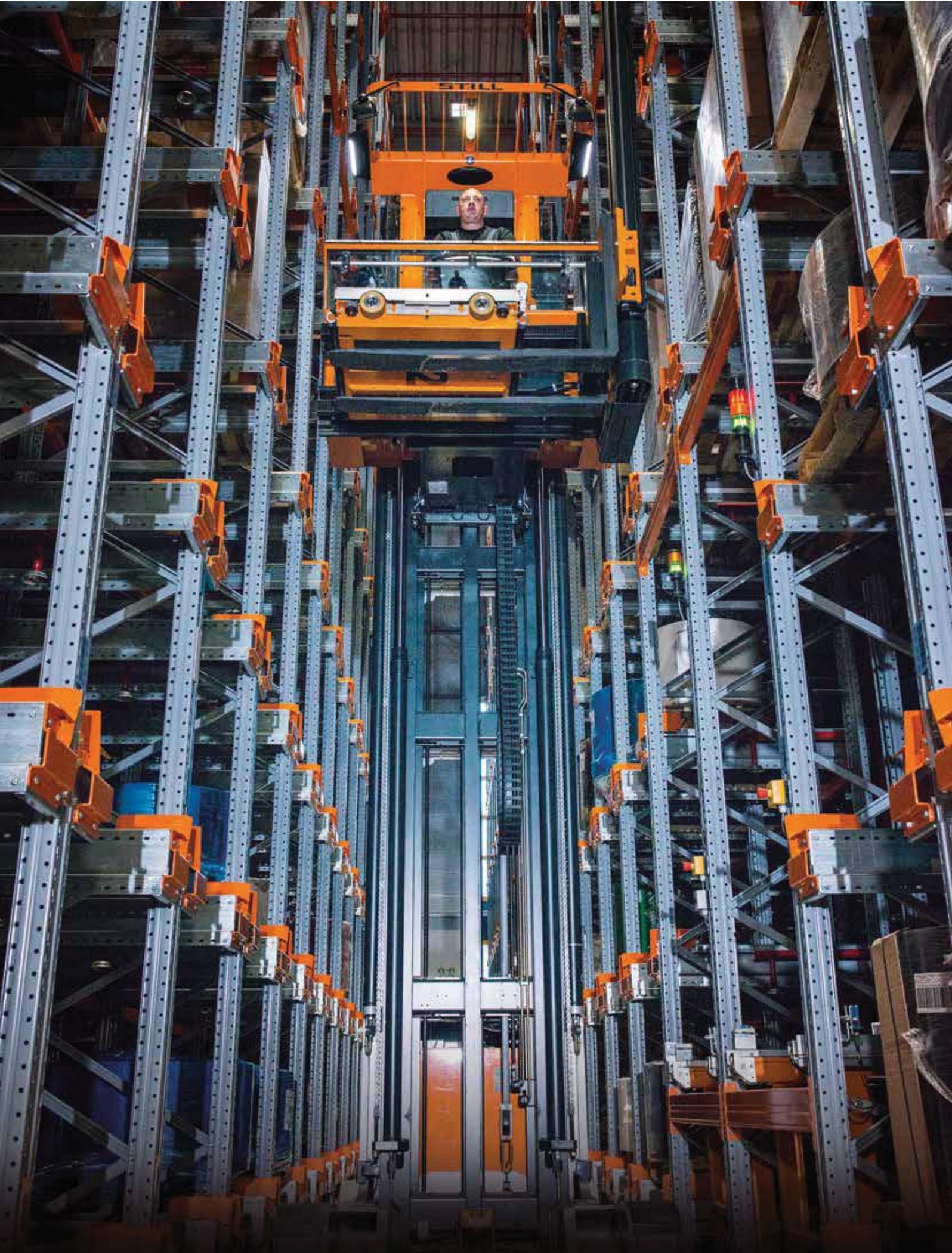
The iGo neo CX 20 unleashes the power of intelligence. It follows its user autonomously wherever he goes. This smart vehicle optimally positions the pallet for the warehouse employee and automatically adapts the speed to suit his pace. This allows a time saving of up to 30 per cent on picking operations. No wonder that – among other things – the operator saves up to 75 per cent in not having to climb onto and off the vehicle.



## ERGONOMICS:

### Simply comfortable

The iGo neo CX 20 constantly adapts its position optimally to the position of the operator and to the picking point. This means, for example, that the operator is always in the most favourable position for loading the second pallet – travel paths are reduced to a minimum.



Two MX-X order pickers are in use at the 18-metre-high channel storage system.

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# Brilliantly automated

**EFFICIENT AND FLEXIBLE** – STILL implemented an almost 18-metre-high automated narrow-aisle shuttle warehouse for the new Heuchemer Verpackung GmbH & Co.KG logistics centre. Thanks to the iGoEasy system, goods can now be transported to and fro in an automatic, efficient and flexible manner.

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### QUICK FACTS

#### THE CHALLENGE

The expansion and partial automation of the existing logistics centre to more than 10,000 pallet bays for raw and finished goods.

#### THE SOLUTION

An approximately 18-metre-high pallet rack warehouse to allow for effective use of space, with support from STILL PalletShuttles and the STILL iGoEasy system.

#### THE PRODUCTS

Shuttle narrow-aisle warehouse, MX-X Narrow Aisle Trucks, STILL PalletShuttles, STILL iGoEasy



“The growth here in recent years has far exceeded our expectations,” sums up a visibly happy Thomas Schmidt, Plastic Plant Manager at Heuchemer Verpackung GmbH, speaking at the official opening of the modernised and expanded logistics centre at its Miehlen site. An almost 18-metre-high pallet channel warehouse, four STILL PalletShuttles, two MX-X Narrow Aisle Trucks and efficient material handling – these are the components of the system solution implemented by STILL for Heuchemer.

#### WELL-EQUIPPED FOR THE FUTURE

The effect that packaging can create was illustrated when the Reichstag in Berlin was wrapped up in 1995 – an experience which will surely live long in the memory for many. One company in Rhineland-Palatinate understands exactly how to get the most out of packaging: Heuchemer. Heuchemer's logistics centre in Miehlen had reached its full capacity, with 430 million packages stored and delivered each year. The company management decided to prepare for further growth by expanding the existing logistics centre by adding a second one as well as automating as many processes as possible. And this is when the packaging manufacturer turned to the expertise of STILL. “It was a logical decision for us. We have known the company for a long time and are highly satisfied with the quality of their products,” says Plastic Plant Manager Thomas Schmidt, referring to the good business relationship with STILL. STILL was responsible for planning the entire facility, defining the structural and technical requirements for the forklift trucks, warehouse technology and rack systems and ultimately taking the lead in the implementation of the entire project. “It was an exciting task, where every detail needed to be carefully examined,” says STILL Project Leader Philipp Hoops. The end result has seen a channel rack system, STILL PalletShuttles, MX-X Narrow Aisle Trucks and the STILL iGoEasy system working seamlessly together as one.

Usually, the investment costs for the required hardware and software as well as the staff costs needed to plan and install automation solutions only really pays off for complex facilities. The STILL iGoEasy system is the first automation solution in the world for straightforward and standardised orders using an individual automated truck which enables full



Take a look! A pallet channel warehouse, STILL PalletShuttles, MX-X Narrow Aisle Trucks and iGo Easy in action



Thanks to the variable number of shuttles, Heuchemer Verpackung is even ideally prepared for future challenges with its compact and flexible channel warehouse.

configuration, control and monitoring to be performed using an iPad. And further still, the system can be installed independently and adjusted at a later point in time to meet new general conditions. The infrastructure needed by the iGoEasy offers the flexibility of being able to easily integrate the equipment into existing processes. As a result, changes to infrastructure are kept to a minimum. There is no need for any capital expenditures on IT equipment or for a connection to outdated stock management systems which ultimately means that there are no high follow-up costs for changing processes or production. The STILL iGoEasy system can also be integrated at a later time into a complex automation solution.

#### **AUTOMATED TRANSPORT**

The various finished products manufactured using the production equipment leave the production hall on a roller track in the order they were manufactured. There is a loading point for the iGoEasy truck at the end of this track. From here, the automated pallet stacker brings the goods in perfectly sorted groups to the correct conveyor belt. A conveyor belt was installed per piece of production equipment on the lowest levels of the existing buffer storage area for this purpose. The conveyor belts are suitably equipped based on the FIFO system. As a final step, the items are picked up by the MX-X forklift and taken to the shuttle warehouse where the goods are transferred to the STILL PalletShuttles which then in turn automatically transport the goods to the shelves. In total, 10,650 bays are available, spread out over more than 750 rack channels. Thanks to the truck lanes, buffer racks and picking stations only taking up a small amount of space, the space utilisation rate is at an impressive 93%.

#### **SIMPLE AND FLEXIBLE AUTOMATION**

The iGoEasy system equips the EGV-S high lift pallet stacker with all the automation components it needs, i.e. a forklift computer and the sensors for navigation as well as pallet recognition. The reflectors are installed along the routes and are read using an iPad with the iGoEasy app. Personal protective equipment prevents accidents. Front and rear cameras transmit the view of the route to the virtual cockpit in the app and therefore to the logistics planner's iPad. The iGoEasy system can be installed independently by any user using the specially designed iGoEasy app and it

can be adjusted to meet changing general conditions. With its intuitive user interface, the app guides the user through all of the steps for the automation, i.e. from setting up the system and the execution of transport orders right through to monitoring the truck. The truck uses the reflectors mounted along the route for assistance with navigation. Each individual source and target station is routed out with the truck and can be saved at the touch of the iPad's screen. All routes which the truck is going to drive following the set-up are recorded during this phase. As a final step, the operator sets the final route using the touchscreen to determine the various coordinates and connects the individual stations to each other by dragging and dropping them.

Customisable settings such as speed limits or one-way routes can of course be configured in addition. The live camera displays what is happening on the route on the virtual cockpit. The position of the truck is also shown on an interactive map of the warehouse. Important information, such as the remaining battery life, speed and transport orders, is also clearly displayed in various infographics. Furthermore, all of these functions can be controlled, transport orders edited and an overview generated using the wireless connection at any location within the reach of the WLAN signal.

#### **PARTNERSHIP WITH A FUTURE**

Heuchemer Verpackung is ideally equipped for further growth with the STILL PalletShuttle narrow-aisle warehouse and has even been able to stop using its cost-intensive outdoor warehouse completely. Yet it's not just the end result which the packaging specialists are extremely pleased with, it's the way that the whole project came together, as Plant Manager Thomas Schmidt explains: "The project implementation phase was without a doubt a major highlight. With its vast amount of experience, STILL makes for the perfect partner, even for unexpected and smaller challenges. Working closely together enabled us to always find a rapid solution and to keep on track with the planned project schedule with incredible accuracy."

# Individualisation is the new norm

**WHEN UNIQUENESS COMES AS STANDARD** – in a nutshell, this is the revolution from mass consumption to a customised industrialised society. And this transition presents both an opportunity and a challenge at the same time.



“The era of standard solutions is over,” says **Thomas A. Fischer, Managing Director for Sales, Marketing and Service at STILL**. “Every industry, every business size and every application has its own rules and requirements. Intralogistics companies offering a “one size fits all” solution are now well and truly outdated. It can be a really simple solution for the small haulier around the corner who needs to transport pallets from A to B, or even an ingenious high-tech solution for a customised flow of goods. In any case, the STILL brand stands for innovation.”

The relentless increase in demand for customised products and services is leading this revolution. With countless possibilities to customise each individual product and service as well as being able to order online on demand, the previous culture of “one size fits all” and buying products straight from the shelf has become a thing of the distant past. The more conventional vertical manufacturing and logistics processes are becoming less and less able to keep up with this development. Production, logistics and IT in particular are all facing the enormous task of incorporating their customers in a more intensive and even faster fashion than ever before into their production process. This will in turn require that production and logistics be able to communicate with each other and be adaptable in the future. On top of this is the need for the database containing all of the individualisations in a customer profile to be shared between manufacturers and logistics partners. This is important because without access to the real-time database it just wouldn't be possible to map out all of the modifications requested at short notice for the end product which is a typical occurrence in today's processes. This also includes integration into customers' future business plans and incorporation of their focus on new areas which they are looking to grow into. In this light, individualisation opens up the opportunity to develop an intuitive and emotional connection with customers and their strategic objectives. To achieve this, the flow of information and material must be adaptable and capable of two-way communication. All this points to the fact that “demand” and “supply” are moving increasingly closer together in terms of the amount of time between them. It's for this reason that logistics and IT systems will have to be designed together in the future. Customers are being supplied with increasingly smaller items tailored to meet their needs, on a just in time basis or completely customised. Or to put it another way: Container ships are getting bigger and bigger, whilst the packages being delivered to customers are getting smaller and smaller.



CAUTION: wild animals! Mast-Jägermeister SE uses special custom-made paint for the design of its vehicles.

**CUSTOM PRODUCTS FOR ALL.** Up-and-coming 3D printers which enable users to achieve an almost industrial-like finish anywhere in the world are setting out the course for the future. Companies will even be able to anticipate their customers' every need in the future: An algorithm patented by Amazon in the USA that describes "anticipatory shipping" makes it possible to use "big data" obtained from social networks to send goods in advance to dispatch centres which operate in areas near to customers who are most likely to be interested in purchasing the products in the near future. If the product is actually ordered it will mean that delivery to the recipient is quicker. It's becoming increasingly difficult to be able to predict all of the intra-company production processes as a result of such complex material and information flows which are based on volatile databases and a high level of product variance. In this context, the "Internet of Things" will enter the real world and the conventional internet, which up until now has been restricted to the virtual world, will be enhanced to provide a network for objects or material parts. The production and logistics processes of Industry 4.0 will see semi-finished parts providing information about their own availability or intended purpose in real time and navigating online and autonomously through the production process. What does this mean? Things will become "smart" as even rough parts, for example, will signal to the machine how they should be processed further. Humans, machines and resources will communicate in smart factories using cyber-physical systems in the same way that humans currently do on social networks. What's more, production and logistics will no longer have to be fixed at one geographical location for a number of years. Moveable logistics facilities with convertible infrastructure will become standard practice. Instead of static warehouses and production locations, the future will feature a "Hub2Move", a transshipment hub capable of moving location, which can be constantly adapted to meet evolving demands and individualisation requirements. In this way, production, logistics and IT can develop and grow closer together exactly where they have always belonged.



3D printers will increase the flexibility of production processes in the future.



“Due to our flexible and modular design methods as well as our customising options, STILL offers more than 8.5 billion varieties of customer solutions. With individualisation having become hugely important, production processes have to be designed with great efficiency and versatility. High process reliability, flat control hierarchies and excellent availability must all feature in lean production in order to keep to delivery deadlines,” explains **Thorsten Baumeister, Head of Production & Production Systems at STILL.**

# On the road again

**BUSINESS TRIPS:** Business trips remain in demand despite digital networking



**NEITHER SKYPE NOR THE ABUNDANCE OF VARIOUS VIDEO CONFERENCE OPTIONS HAS YET MANAGED TO HAVE ANY IMPACT ON THE FREQUENCY OF BUSINESS TRIPS.**

This is justifiably so too as nothing strengthens trust between people, and therefore companies, more than a face-to-face discussion. But is there a winning formula for a perfectly planned and smooth-running business trip? Our proposal is the perfect “travel script” which anticipates all conceivable challenges and obstacles. Or to put it another way: If you want to make sure you have a pleasant trip, you’ll need to plan in advance. In terms of writing this script a very simple mental trick can help: Just image yourself as the leading actor, start the cameras rolling and let your imagination take you through the stages of your journey. The result will be your very own road movie which acts as a blueprint for your upcoming business trip. This scenario-based technique allows you to run through your entire journey before you go and to incorporate all of the essential scenes right through to the dress code and etiquette in foreign cultures. Your script should definitely include any current travel warnings issued by the Foreign Office, as companies which are proven to be badly prepared in the event of a crisis are ignoring their duty of care and risk being legally liable for the consequences.

If the planning of the trip is to be assigned to a professional travel management service, then in this part of the story it's important to be a good buyer as well as acting as a colleague with empathy and showing an understanding of the challenges facing the business traveller. In this sense, the return on investment of a business trip is significantly greater if the travel time can simultaneously be used to work, for example in a business lounge in a higher booking class on trains and planes. It shouldn't just be the pure cost of accommodation that is looked at

when comparing hotels – the added extras that come included also need to be compared. The spectrum of offerings ranges from free fruit in rooms to free wireless internet with fast speeds right through to upgrades to the next highest room category or the option of a late check out. When planning routes using all available means of transport, apps such as “GoEuro”, “moovel”, “Qixxit” and “ally” are good services to turn to. They can guide the planner through regions and cities using public transport, car sharing or taxis. As far as a company's image is concerned, “sustainability” is now a key issue for business trips. Particular attention should therefore be given to the environmental footprint left behind by the hero of this great travel story. Domestic flights are increasingly frowned upon, whilst travelling by Deutsche Bahn (Germany's rail network), which makes use of electricity generated in a climate neutral manner, is by far the most acceptable for the environment. Even long-distance coaches are gaining in importance for business travellers. On the one hand, this is because this mode of transport is the most environmentally friendly way to travel long distances in terms of the CO<sub>2</sub> emissions per passenger. On the other hand, the ticket prices are extremely cost effective. Many connections are direct and the destination stations are located in town centres which is a real advantage for trips to medium regional centres.

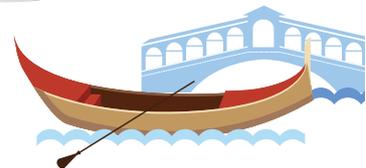
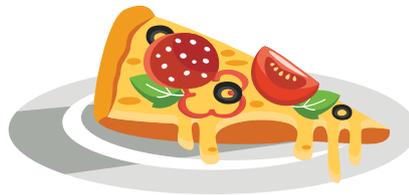
Networked working is also possible on board long-distance coaches as most now offer WiFi and plug sockets at the seats. Travelling from Munich to Zurich takes business travellers around four hours on long-distance coaches without any changes, five hours on the train and around two hours by plane, including arrival and departure times. This all forms part of the key information needed for a traveller's story which is socially and environmentally acceptable, safe and guarantees a happy ending.

# Cliché or reality?

**TYPICAL...ITALY:** The Italian moments in life



Lorenzo Leri



For us Germans, we've known it since Goethe's Italian Journey as the "country where the lemon trees bloom". However, the image of Italy according to those in the North often has little in common with the reality of our fellow European citizens in the South. Or does it? Let's just ask a born-and-bred Italian who is also an enthusiastic STILLian. Lorenzo Leri, who was born in Milan, lives and works at OM STILL in Lainate. He gives us an honest and tongue in cheek view of the stereotypes which Germans have for Italians. Eccola!

## **NORMAL MEALTIMES IN ITALY SOON BECOME RATHER LAVISH BANQUETS.**

That's very true. Eating is like a religion to us and a ritual which can last for several hours. Quick and easy meals are OK during the week but as soon as we find ourselves with a bit more time on our hands we simply love sitting around the table with our family and friends. We have one of the most varied cuisines in the world, which means we've always got good reason to sit around the table together.

## **ALL ITALIANS LOVE FOOTBALL.**

That's right too. You could say there are 60 million budding football coaches living in Italy. It's no surprise really that "Gazzetta dello Sport" is Italy's best-selling newspaper, forming part of our essential reading every morning on the way to our first coffee in a bar (which is yet another genuine cliché).

## **ITALIAN MEN LIKE TO THINK THEY ARE ALL MACHO BUT IN REALITY IT'S THE WOMEN WHO ARE THE BOSSES IN FAMILY LIFE.**

That's probably mostly true. But in any case, our bark is worse than our bite. **THE ITALIAN MAN ATTACHES GREAT IMPORTANCE TO HIS HAIRSTYLE AND SHOES.**

Almost right, but it's not just the shoes and hairstyle – our overall image and style are very important to us. And I'd like to offer some advice if I may: Do not wear sandals and white socks when visiting Italy as many tourists, whose nationality I won't reveal, often do.

## **ITALIAN MEN CAN'T WALK PAST A WOMAN WITHOUT TAKING A CLOSER LOOK AT HER.**

Let's just say that we're hardly ever unimpressed by feminine charm. We also have a real weakness for Mediterranean women and a particular disposition for romance.

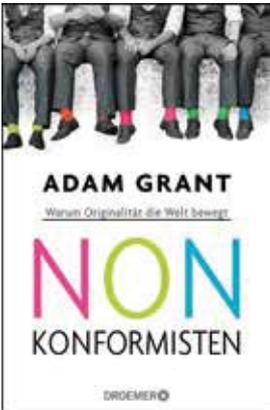
## **GETTING WORKED UP ABOUT EVERYTHING AND ANYTHING IS PART OF THE MEDITERRANEAN TEMPERAMENT.**

That's only partly true. It just depends on whereabouts in Italy you're from. In the North, things are a little calmer. The further south you go, the warmer and more "spirited" things become. But no matter which region we're from, we always put our hearts into everything, including our discussions. So there's no need to worry if you see two Italians having a chat at the top of their voices, as it's very likely that they're just discussing the game from last night.

## **FOR ITALIANS, THERE IS NOTHING MORE IMPORTANT THAN THEIR MUM.**

Absolutely. On average, Italians have many women in their lives, but often the only one who really counts is their mother. It's not for nothing that we say "la mamma è sempre la mamma" ("Your mother is always your mother"). The issue is that our partners know this all too well, which often leads to epic fights between mother-in-laws and daughter-in-laws, regardless of the consequences.

# READ

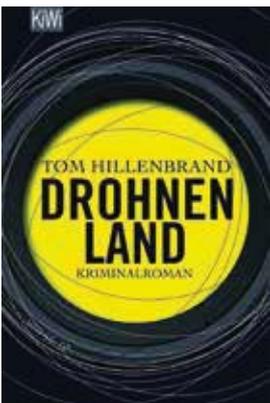


## ORIGINALS

The widespread cliché about company founders and managers is that they're obsessive, prepared to take risks and, of course, constantly come up with one great idea after another. But is there actually any truth in this?

Renowned organisational psychologist Adam Grant shows which kind of people are the biggest non-conformists and spells out exactly how you can be more effective in bringing your own quirks into play, make allies and choose the right moment to take action. This is an inspiring read for anyone who wants to put their own ideas into practice and achieve great success.

Grant, Adam (2016): Originals. How Non-Conformists Move the World. Droemer HC. Hardback edition. Price: EUR 22.99.



## DRONE LAND

It's not money which rules the world, but information. – Not even George Orwell would have been able to imagine the world which Tom Hillenbrand portrays in his science fiction thriller "Drone Land" in his wildest dreams. The action takes place in the EU in the middle of the 21st century. Vast swathes of Europe are under water thanks to climate change and there is almost total around-the-clock surveillance of each individual wherever they are. Everything is being watched. Everything is safe. But then a murder is committed which calls everything into question. A pulsating thriller which couldn't be more relevant.

Hillenbrand, Tom (2014): Drone Land (German title: Drohnenland). KiWi. Paperback edition. Price: EUR 9.99.

### IMPRINT

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# APPS

## TRELLO – THE WHITEBOARD WITH SUPERPOWERS

Trello is a piece of web-based project management software which can be used both online and as an app on Android and iOS. You can use Trello to create an individual board for each of your projects, helping you to organise them efficiently for use by yourself or with any number of colleagues. Each team member will know exactly what needs to be done, when it needs to be done and how it's got to be done as well as being able to leave behind some comments for the rest of the team. All actions are also instantly synchronised and saved in the cloud. This ensures that the most up-to-date information can be accessed on all devices.



## FUNCARD – DIGITAL PRINTED POSTCARDS

Find yourself posting fewer and fewer postcards when you're on holiday? Free app FUNCARD developed by Deutsche Post wants to change that and has come up with a very convincing way to do so. The idea is as simple as it is ingenious. Just grab your smartphone from your pocket, take a few holiday snaps and send them as real postcards. You can even write your own personalised message on the back as usual. Printing and sending a postcard within Germany costs EUR 1.90 and the cost to send one abroad is EUR 2.35.



# PUZZLE

person in charge of animals	heavy metallic element	establish so firmly that change is difficult	letter of Greek alphabet	coconut dried for the oil content	a single organism	plain type of fabric	two who form a pair
exile	rancher			laborious	Gr. goddess		a cheese
wading bird				a soft-bodied legless grub, larva			
		11		to urge		5	8
				a group, collection		dram of spirits	
underwear				hand, bracelet		Ireland	authority from or founded on law
flat-topped conical red hat				entire range			
				music genre		list of names	
				bus driver	7	river in the U.S.A.	
		6					
label on article stating cost	infinitely long time			proposition			proceed used for romantic lighting
	creature			linger			
						1	tin for food capital of Liechtenstein
sky-diver	prattle					egg-shaped	not as great in amount or quantity
	military cap			2	where Carnaby Street is	wrong, amiss	
				unit of work or energy	any rank on a ship under petty officer		basic monetary unit of Romania
member of an Indian religion						a duck walk	
keepsake	10					out of	
distant, separate					this hero did the 12 labours for Hera		4
throw, hurl							
				squarish, chunky in style or appearance		the sender of thunder and lightning, god	

1	2	3	4	5	6	7	8	9	10	11
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This prize could be yours!



## PHOTO FINISH

There are hundreds of photos on today's smartphones. With this compact mobile photo printer, you will soon be able to print your personal collections quickly and easily at home in stunning professional quality! Simply connect your smartphone, tablet, computer or camera wirelessly (or use a cable/memory card) to the printer and you're ready to print.

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The closing date for entries is 31/08/2016 - STILL Group employees are not allowed to enter the competition.

# NEWSLETTER



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