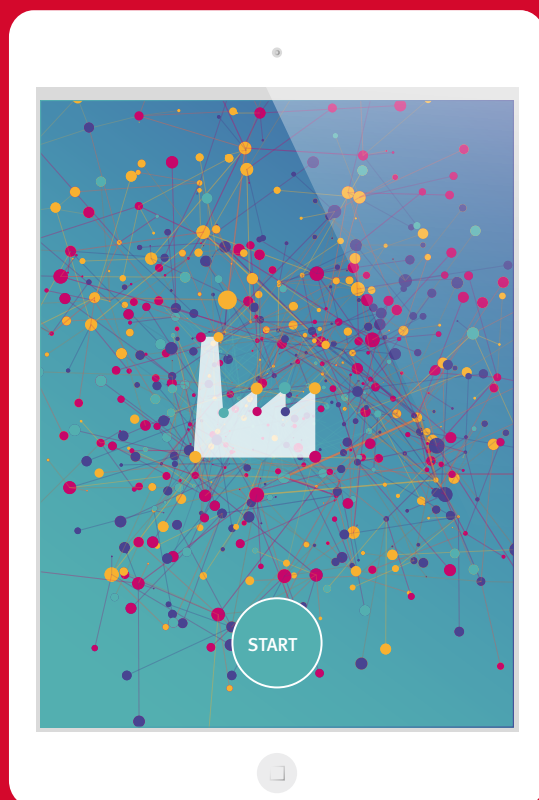


MORE FROM WOOD.



EGGER Group customer magazine

08



Smart times ahead

What can digital networking offer
our home and work lives?

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INNOVATIVE GLUE FACILITY

The building work in Hexham, UK, lasted three years. It took around 200 companies and 800 external and internal employees to build the new cooling towers step-by-step, without requiring long production downtimes. It is one of the world's most modern facilities, including tank storage and an administrative building. On 16th June 2015, the new Campact facility finally produced its first batch, producing **60 tonnes of glue**. Energy released as part of the production process is then fed into the thermal-oil network, in keeping with EGGER's philosophy of having sustainable environmental cycles.

THE INTERNET IS MORE THAN A TRADING PLATFORM AND MARKETING INSTRUMENT.



Truth be told, networking is nothing new. As soon as a person or item has an effect on another person or item, they are, academically speaking, deemed to be "networked." In contrast with the past, the number of networks are increasing rapidly today thanks to digitalisation. **Digital networking** is fundamentally changing our world these days.

It is not only worldwide data flows between people that are on the rise. There are an increasing number of devices that are connected to one another. Academics quantify the degree of networking based on several factors, including the number of devices connected digitally. According to research, there will be between 28 and **35 billion** devices connected digitally by 2020. The internationally renowned Massachusetts Institute of Technology (MIT) estimates that more everyday objects other than just PCs and smartphones will be networked with one another by 2020. The same is true of technology in

companies. In this instance, digitalisation means more than just the Internet. And the Internet is far more than a trading platform and marketing instrument.

At EGGER, digital networks can be found throughout the company, from recruitment and production to the "Manufacturing Execution System" (MES) and RFID chips in Logistics. There is something new and exciting to learn every day. We examine whether or not a certain technology is suitable for EGGER on a daily basis.

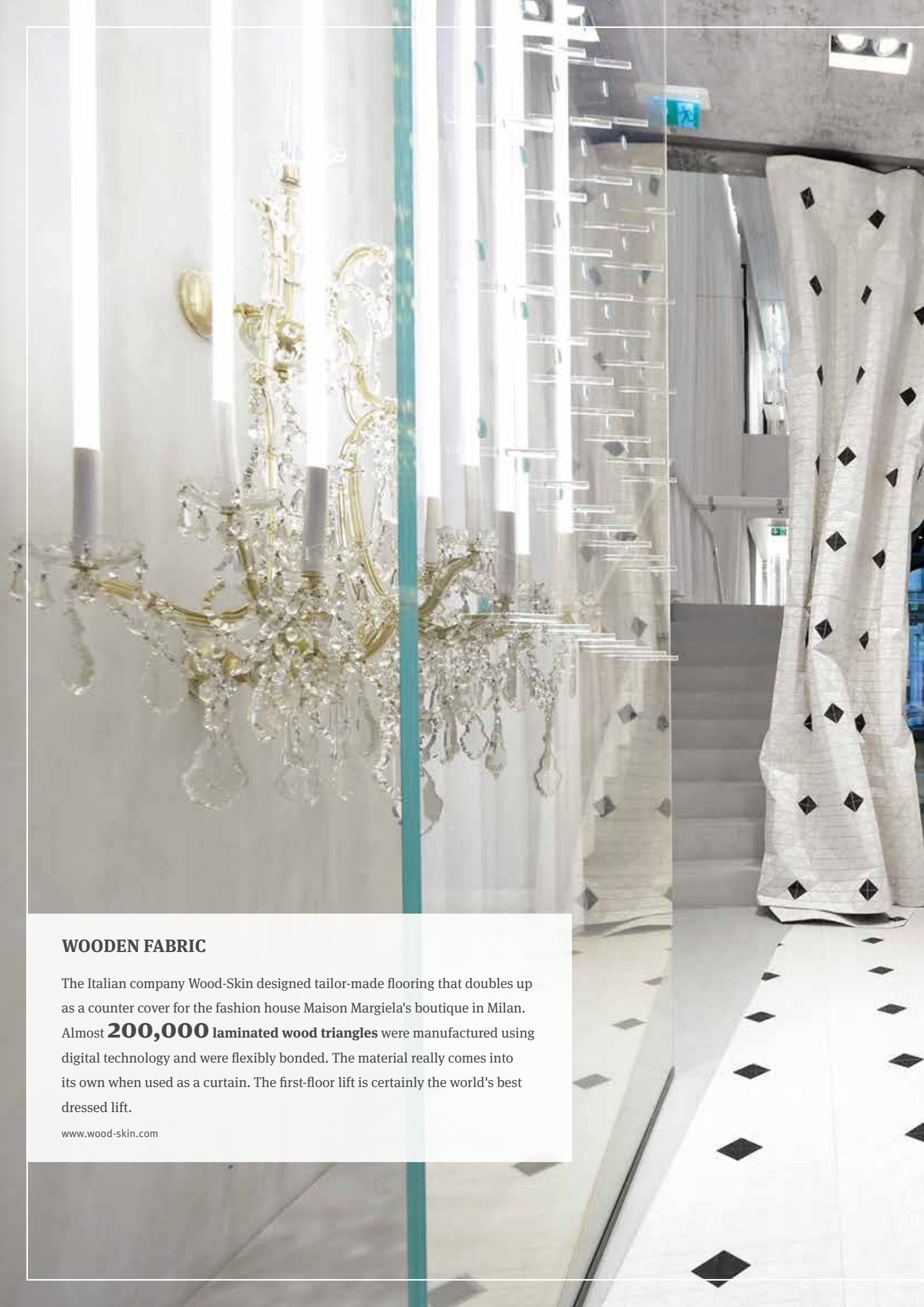
We devote our time to mastering this balancing act. How much digitalisation is required and what will always remain the same? In our eyes, this will include our face-to-face meetings with partners and customers, receiving constructive criticism and a reliable **handshake**. From everyone in the EGGER team, we hope you enjoy our magazine.

EGGER Group Management

Walter Schiegl
(Production/Technology)

Ulrich Bühler
(Marketing/Sales)

Thomas Leissing
(Finance/Administration/Logistics)

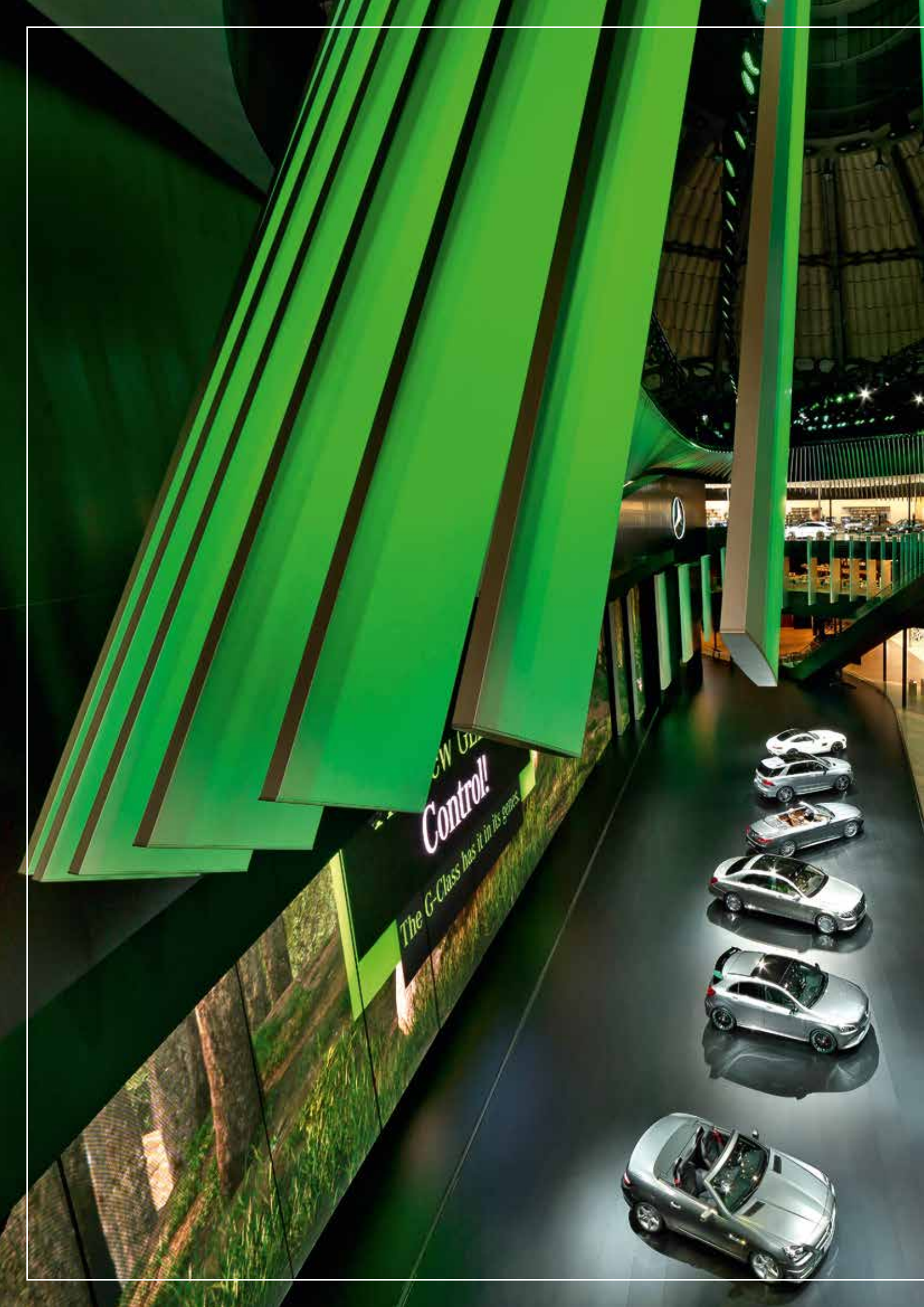


WOODEN FABRIC

The Italian company Wood-Skin designed tailor-made flooring that doubles up as a counter cover for the fashion house Maison Margiela's boutique in Milan. Almost **200,000 laminated wood triangles** were manufactured using digital technology and were flexibly bonded. The material really comes into its own when used as a curtain. The first-floor lift is certainly the world's best dressed lift.

www.wood-skin.com







MERCEDES ON EGGER FLOORING

The IAA automotive trade fair opened in Frankfurt (Germany) on 17th September 2015. World-famous brands from across the sector competed against one another to secure the best stage for their exhibits. The architect's practice, jangled nerves, used **3 000 m² of EGGER laminate flooring** in Northland Oak Brown (H2352) to display the latest Mercedes Benz models. This resulted in the latest automotive technology being presented on a modern wood-based material.

www.egger.com



TEMPORARY CITY FOREST CANOPY

The four-metre-high “MPavilion” designed by British architect, Amanda Levete, is the latest design-inspired event space to open in Melbourne, Australia. The Stirling Prize winner has planted **43 trees** made from carbon fibre, with petals made from a special composite in Queen Victoria Gardens. Using the technology behind boat building, the transparent roof petals have a diameter of up to five metres and also feature light diodes. They even sway gently in the wind.

www.mpavilion.org







E_INSPIRATION

“The brands in the room should
evoke warm and positive feelings.”

Heike Kiesling, EGGGER Head of Marketing, Furniture and Interior Design
Real-life encounters (pages 18 to 21)

Ideas for tomorrow

ARTISAN'S ANATOMY

www.happaratus.com

Some discoveries are so brilliantly simple that we ask ourselves why they had not been thought of before. It is probably because the word "simple" nevertheless involves a great deal of knowledge and vision. The final project designed by Morten Grønning Nielsen, a graduate from the Royal College of Art, is a good example. His "Happaratus" is a glove fitted with a hydraulic motor. Your thumb, index finger and middle finger are cabled together with small vibrating grindstones that are chosen based on the material you wish to process. The grinding degree can be adjusted gradually, meaning you can work stone and wooden surfaces with ease.



SEMI-CONDUCTOR BIOLOGY

www.nature.com



Wood is a renewable and environmentally friendly raw material. However, it does not conduct electricity. Despite this, it was announced in May 2015 that researchers in China and the USA have produced chips for smartphones, tablets and computers made from wood. Coated in resin, the flexible and durable nanocellulose is used as a basis for the semi-conductor material. This breakthrough not only means that the use of dangerous substances, such as carcinogenic gallium arsenide, can be reduced in consumer electronics, but also when a component needs upgrading, there is less electronic waste. In fact, the new wood chips are even biodegradable.

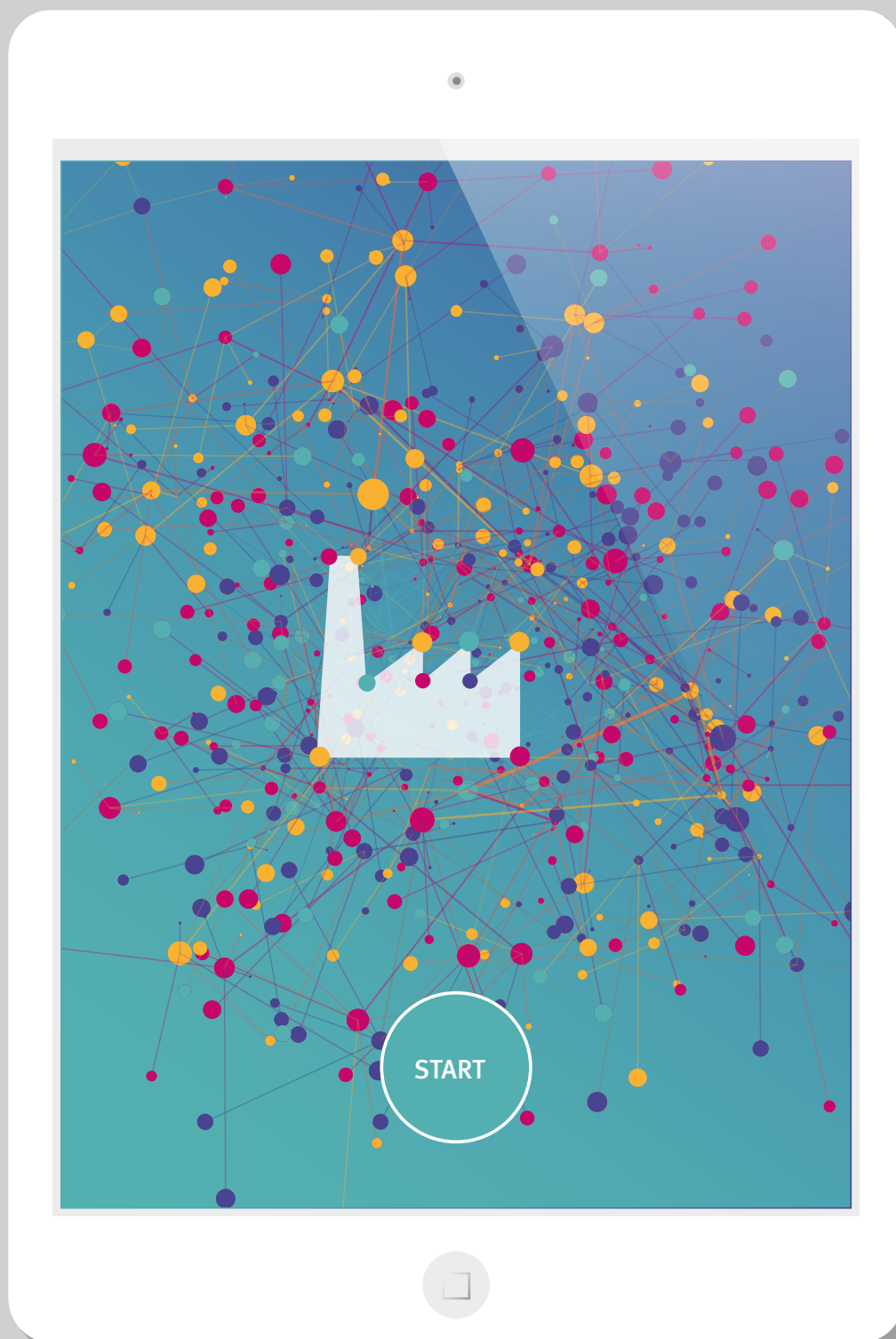
PLAYROOM TECHNOLOGY

www.primotoys.com

"Cubetto" wants to go from the city to the castle. But the friendly, laughing wooden box is not moved around the large, chessboard-like play area by hand. He drives himself. Using a new wooden play set developed by the London-based company Primo Toys, pre-school children program Cubetto's path, while learning how to communicate with computers. The programming language? Red coding blocks mean to go straight on, blue ones mean turn left, yellow ones mean turn right and so on. The control centre wirelessly transmits the commands to Cubetto at the touch of a button and the wooden robot starts to move.



FOCUS ON DIGITAL NETWORKING



OVERVIEW OF THE TOPICS

- 12-17 New intelligence
- 18-21 Real-life encounters: Analogue networking as a counter-trend
- 22-25 We talk to Jivka Ovtcharova

New intelligence

Major inventions have always revolutionised the way we work and manufacture. And now we are experiencing a new technical revolution. What seemed like yesterday's pipe dream is now becoming digital networking reality.

AUTHOR Till Schröder

“Smart” is the keyword of our time. It digitalises our lives and combines intelligence with elegance. When the conversation turns towards digitalisation, we instinctively reach for our key to the world – our smartphones. During recent discussions, a former plant manager who is now a Siemens board member reminisced that in the past, he had to be at the plant by 7 o'clock every morning to see with his own eyes that everything was right. Instead, he could have spent an extra half an hour at home, enjoying breakfast with his family. Everything is different now. Using an app on a smartphone, you can check from anywhere in the world that all conveyor belts are running smoothly and all facility parameters are just as they should be.

Digitalisation supports smooth interaction

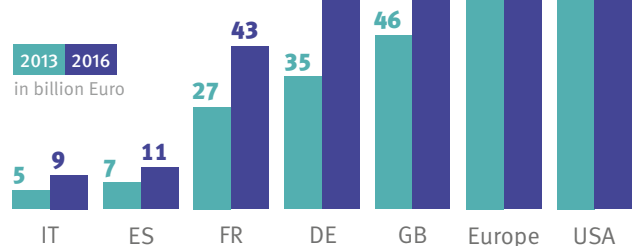
This story may oversimplify reality somewhat, but it really captures our fascination with digital networking. It is for this very reason that Wolfgang →

Online purchases

Our willingness to make online purchases is increasing rapidly. If measured in terms of the total population, Americans are leading the way. Within Europe, it is the British.



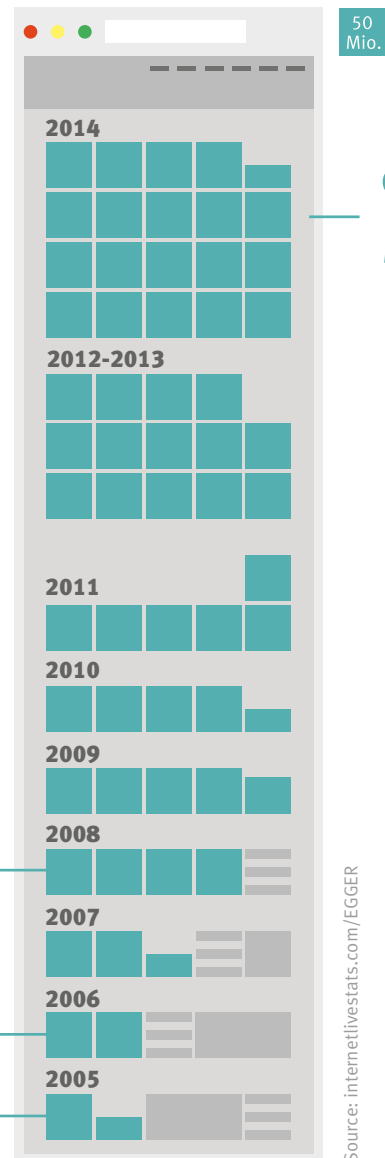
2013 2016
in billion Euro



Source: Centre for Retail Research on behalf of deals.com

Number of websites worldwide

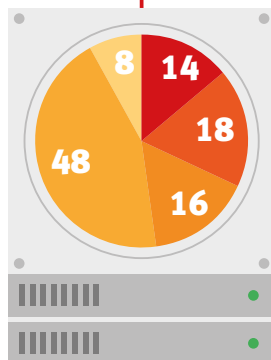
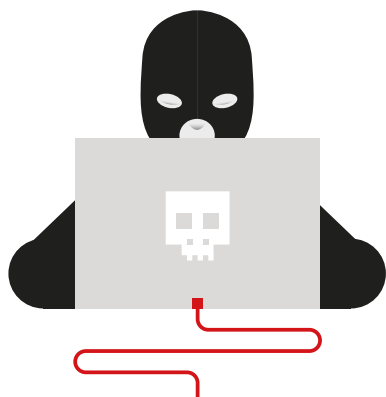
The number of websites is increasing very quickly this decade. This shows the increasing dynamic of digitalisation.



975 Mio.

Frequency of cyber attacks

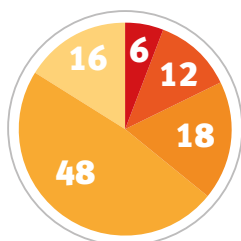
The larger the company (based on the number of employees), the more regularly it is hacked.



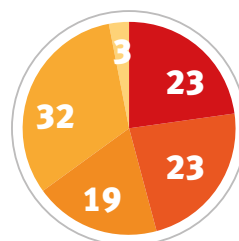
Companies in total

- Daily
- Once/several times a week
- Several times a month
- Less frequent
- Never

Figures in percentages



Companies with 50-100 employees



Companies with 1000+ employees

Source: Cyber Security Report, T-Systems

→ Wahlster, Head of the German Research Centre for Artificial Intelligence (Deutsches Forschungszentrum für Künstliche Intelligenz, DFKI), enjoys talking about Industry 4.0 during his presentations. This technology makes it clear how our professional and personal lives can be better combined on the basis of digital networking. One example is having real-time access to processes in the Production department. Another example would be instantly increasing value-adding processes. Factories are becoming “Smart Factories.”

Smart means that the technical systems across different company areas can not only read data but also understand it. “Communication between musicians also depends on the quality of their collective playing,” says Wahlster. He coined the phrase “Industry 4.0.” The media picked up on this phrase in 2011 and used it as a name for the apparent restructuring of the economy. In this case, 4.0 stands for the fourth industrial revolution following three previous radical changes - the discovery of steam engines, electricity and automation. The fourth technical revolution has hit people's daily lives with full force. Children learn the principles of digital networking via the medium of television. “Objects such as fridges will become smart, or even intelligent,” explains the presenter Felix during a children's educational television programme. “And the result will be a networked world.”

Intelligent systems solve problems and change what we are used to

Media reports and show homes are cleverly demonstrating how our future domestic lives will be controlled in our “smart homes” using “smartwatches” and tablets, considerably helping us every day.

In fact, whole towns will become smart. With effective networking between energy suppliers and consumers, or enabling traffic-free roads, “Smart

Cities” are now used as models for the EU's city funding programmes. As a result, cars are increasingly becoming computers on four wheels. McKinsey is sure that driverless cars will be the norm by 2040. The consultancy firm is convinced. When a computer can take control of the wheel, it is estimated that in the USA alone savings of USD 190 billion could be made in relation to bodywork damage and injuries caused on the roads. Market observers are predicting a painful slump for body repair shops. This example shows how fundamentally digital networking will revolutionise the personal and professional lives we have come to know. Just as our domestic lives, cities and traffic will change enormously under the influence of digital networking, interaction within companies will also change. Thanks to digitalisation, it will become faster, more efficient and more transparent. The same can be said of external participants within the same value-adding network, from suppliers right through to processors. In June 2015, customers ordered more product samples to show to their customers via our sample shop, rather than via the more traditional methods of telephone or fax than ever before in the history of EGGER Online. A large percentage of these orders are now processed automatically. “With 10,000 samples to send every year, we have to rely on our

orders being handled correctly,” says Ulrich Bühler, Head of Marketing and Sales within the EGGER Group.

What should have been taken for granted for a long time is now finally possible

Another area that will benefit from smooth interaction thanks to digital networking revolves around precise and clear invoicing. Every single item must be easily identifiable using clear article designations. Although it sounds straightforward, it is essential for a strong customer relationship and is actually quite complex.

Manufacturers and customers must speak the same data language and reference standardised product data. Here at EGGER, these systems function just like those that simplify the interaction with suppliers when purchasing raw materials. Internal and external boundaries become blurred when we work closely with our partners. For example, EGGER supported Logiball to develop a navigation device that



The four central aspects of Industry 4.0

The key phrase “Industry 4.0” refers to networking intelligent objects, machines and people in companies and on the B2B market. A distinction is drawn between four areas.

VALUE-ADDING NETWORK

The value-adding network refers to a company's locations and suppliers and can also include several value-adding chains. This is also referred to as “horizontal integration.” An example of interaction in this network is reliable, transparent logistics using RFID technology.

NETWORKED PRODUCTION SYSTEMS

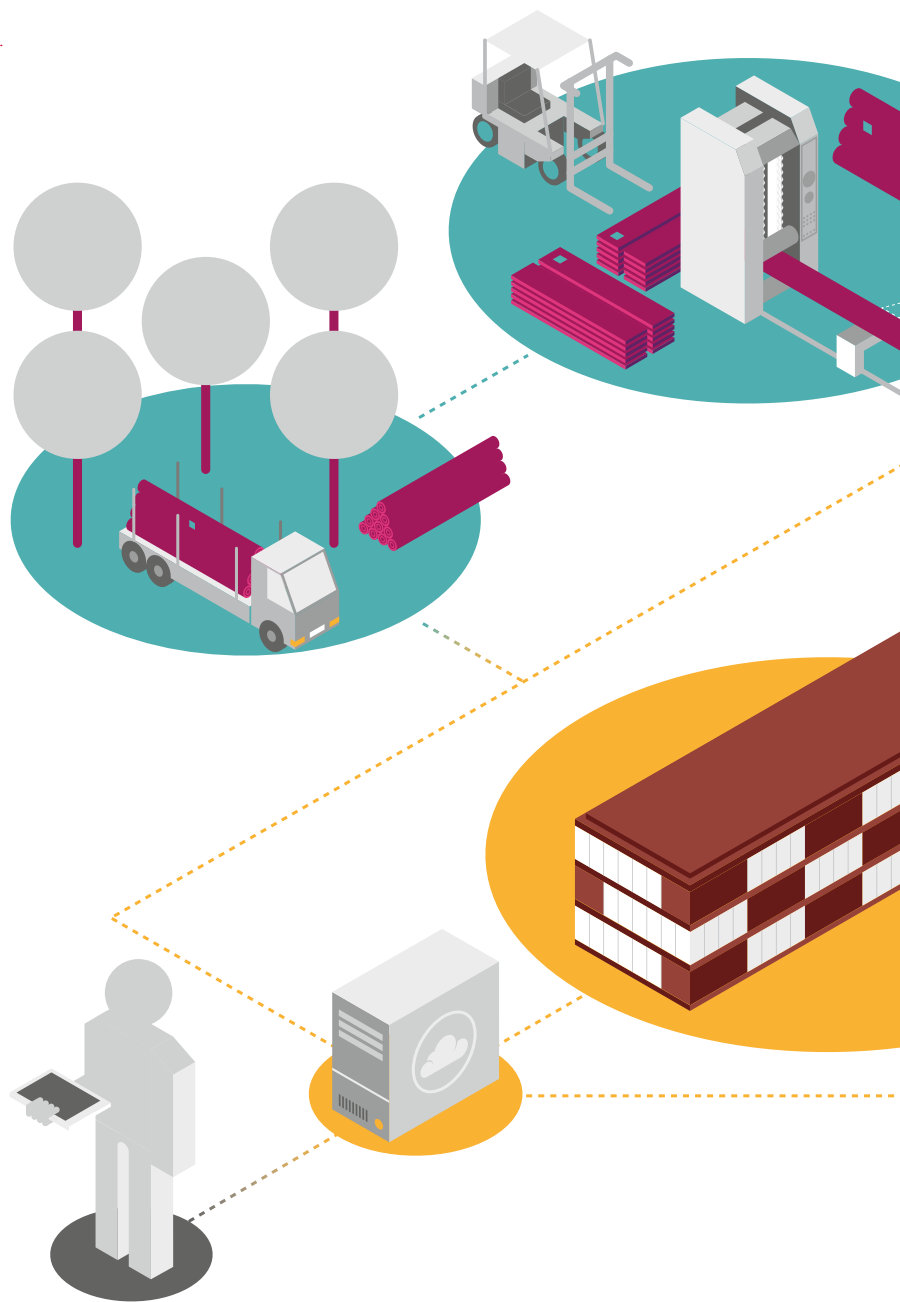
Digital networking also connects the individual stations within a Production department, from processing the raw material through to the finished product. Efficient control using a Manufacturing Executive System (MES) is an example of “vertical integration.”

VALUE-ADDING CHAIN

“Digital engineering” adjusts the stations along a company's value-adding chain, from design through to services, so they run seamlessly in an ideal world. A central interface within this chain is one that combines Computer Assisted Design (CAD) and another that combines Computer Assisted Manufacturing (CAM).

PEOPLE

Digital networking and Industry 4.0 must not be confused with automation. A qualified person still conducts the production orchestra. The technology simply allows them to centrally observe every element along the value-adding chain and to intervene at any time via the computer centre connection, the heart of the digital network.



Source: Raufeld

→ reliably guides lorry drivers along forest tracks to reach timber stacks in the forest.

The entire company is interwoven by digital networking. Individual production steps can be made clear and efficient using powerful Manufacturing Execution Systems (MES). In turn, delivery-vehicle RFID chips that can be



read remotely also simplify logistical material flows. Transparency, reaction speed and controllability are the main aims of digital networking. Successful networking makes companies more flexible. This is essential for survival because markets are becoming ever more volatile. This is what experts have called "rapidly changing demands." What used to be too complicated will be

possible in future. Switching production plants to alternative products in the shortest possible time, manufacturing any quantities right down to a single item more efficiently and absolute transparency to prevent failures, downtimes and poor investments. Digital technology makes all of this possible provided employees have the appropriate qualifications to master this

technology. Digitalisation does not mean that technology can complete all work. Technology still needs to be controlled by a person. As a result, people must remain the smartest component in a system in the future.



1

Real-life encounters



1 Products from our range are displayed on the flexible EGGER presentation stand. This is a snapshot of our stand at the Mebel 2015 trade fair in Moscow.

2



2 With a mobile pop-up store, the fashion label Joe Fresh was able to attract customers on New York's Broadway.

As the world becomes increasingly virtual, we know we need to appreciate its physical qualities even more. We take a look at the renaissance of classic sales instruments that are building analogue trust in a digital age.

AUTHOR Meike Wöhlert

The sense of touch is both a friend and foe for online shopping. On the one hand, our fingertips place orders by clicking a mouse or touching a screen. But our brains tell these very same fingertips to visually inspect goods. Is the first impression the right one? Seeing provides guidance and feeling provides certainty. Of course, shopping online is easy but on screen, you cannot check whether a product's material lives up to its promised picture. That was also one of the reasons why Amazon chose to open its first bookshop last year, from its premises in Seattle. You can not only buy print editions but also e-readers.

But what impact do analogue experiences have on the economy? It is clear that the look and feel design is no longer limited to the swipe experience on a touchscreen. For example, even in the automotive industry, sensor labs are being used so that steering wheels have the perfect handle design. And surface manufacturers are putting in a lot of effort to make wooden decorations

feel as natural as they look. Ironically, this precision would not be achievable without highly developed software. In this instance, the boundaries between the digital and analogue world have already blurred. In contrast, things still want to interact with the senses. People want to meet people. But the Internet cannot laugh or shake hands. There are an increasing number of ways that complement digital networking with the main aim of meeting with customers and business partners face-to-face.

Despite the huge leaps that have been made in video-conference technology, meeting centres with flexible rooms are springing up everywhere. Founded 25 years ago to offer flexible workspaces, the Luxembourg-based company Regus alone operates more than 3,000 business centres in 900 cities throughout the world. And while the e-commerce sector of B2C sales benefits from double-digit growth every year, global turnover in 2014 nearly reached USD 1.5 trillion, temporary retail spaces such as pop-up stores, mobile platforms and flexible



3 weShop is a smart showroom that enables personal customer contact.



3

→ Points of Sale (PoS) are appearing all over the place. This trend is also boosted by a renaissance of small specialist trade fairs, such as the Architect@Work fair. Founded by four Belgian interior designers, the exclusive architecture and design fair is held several times a year throughout Europe. The recipe for success is a limited number of key decision-makers and no time wasted on exhibitors and visitors. The materials, products, applications and services presented are selected by a committee and are guaranteed to be innovative. In general, the event is limited to two days. Participants relish the target-group orientation, the service and the lounge area to meet others face-to-face. Furthermore, companies can present themselves and their products online on the trade fair's website.

Digital marketing is most successful when the customer knows what they are looking for. In contrast, analogue

contact helps them to find what they are looking for, sometimes in pop-up stores, for example. Boxpark, the world's first pop-up mall, was opened in 2012 in London's East End.

It is a trail-blazing example. Pop-up stores can now be found in many innovative shopping centres. Spaces of all kinds and in various price brackets are listed throughout Europe on websites such as Nextsalesroom.com and Gopopup.com. They are used by established brands to give their products a platform or to surprise the public with a particular atmosphere, in a gallery, for example. For companies that solely trade online, such as the homeware retailer Urbanara, pop-up stores are an interesting option because potential customers have the opportunity to feel the quality of the materials used rather than buying a pig in a poke. To network the real and virtual sales worlds even more, the creative agency



Serviceplan Design and the Vittrashop Group have developed weShop. This intelligent showroom can do almost anything, from one-to-one meetings with customers using an indoor navigation system (beacon technology), providing style advice via video call ("Call an expert") to ordering products online that are not available in store using shop tablets.

EGGER Point of Sale and roadshow: touching wood

Together with the Serviceplan agency, EGGER has designed the EGGER Point of Sale, an igloo-shaped structure that can cover an area between 6 and 20 m². This PoS features design software and provides access to our online service offers, but it also allows us to inspect elements from the EGGER range more closely, to touch them and to talk with specialists. A Point of Sale does not necessarily need to be used for sales



4

4 The Bikini Berlin concept mall opened in April 2014 with 19 “Bikini Berlin Boxes” made of wood. To make sure these pop-up stores do not become fixed kiosks, the rental contract is limited to 12 months.

purposes, instead, it should make a product or a brand something that can be experienced directly. Sky, a subscription television channel, discovered how effective a PoS can be when it commissioned one in 2012 to reach potential customers in shopping centres. “Sky sold significantly more subscriptions than planned,” says Serviceplan Managing Director, Philipp Steinle. In relation to the EGGER brief, Steinle believes it is the brand essence that truly counts. “We wanted to use the EGGER PoS to make it tangible.” Heike Kiesling, Head of Marketing, Furniture and Interior Design, goes one step further. “The EGGER world should evoke warm and positive feelings, transforming the company’s values and products into something tangible,” she explains. Being creative with mood is necessary these days to stand out from the crowd. The EGGER PoS was first used

at a major event in autumn 2014 when the EGGER 2015-2017 laminate flooring collection was introduced in Berlin.

The EGGER Truck also defines our product world. In 2014, it took flooring products on the road and in 2015, it was building products. And why was the red 33-tonne truck travelling across Europe? The walk-in exhibition truck aimed to reach as many customers and business partners where they are located, even if they are in far-flung places. Since it hit the road in 2011, the truck has now stopped in almost 30 countries. Last autumn alone, it travelled through Sweden, the Czech Republic, Slovakia and Croatia. The truck not only carries the entire building product range on board, but is also equipped with the latest digital technology that is used for training and presentation purposes to enhance the whole experience.

5 Last year, the online retailer Amazon opened a bookshop in Seattle. The books are organised thematically and are based on customer reviews.



5

WE TALK TO JIVKA OVTCHAROVA



“People are the focus”

Do presentations on digital networking often sound like a pipe dream? No, not when you talk to Jivka Ovtcharova. The Computer Science professor is calling for us to switch to practical work now. We talk to her about Smart Factories, turning away from IT centrality and the film hero Marty McFly.

INTERVIEW Till Schröder

MORE: Professor Ovtcharova, let us look to the future: Where in the world will production centres be located in 30 years time – China, India, Eastern Europe, or in western industrialised countries?

Jivka Ovtcharova: The world in 30 years time - we saw that last year when film hero Marty McFly travelled from 1985 “Back to the Future” and arrived on 21st October 2015. The future, as it was described then, hardly resembles our present day. But we can still predict economic development up to 2025. There are similar approaches throughout the world. Whether it is in Europe, Asia, the USA or Australia, “Made in ... 2025” strategies are all based on innovation, intelligent technologies, the Internet of Things and digital education. In the long term, we will no longer see the mass-production factories that we know today in Eastern Europe, China and India. Smart Factories will replace them throughout the world.

MORE: In lay terms, how would you explain the term “Smart Factory” in two or three sentences?

The current most important trend is connectivity. It sets completely new boundaries for markets, products, production locations and services that are best explained using the term “Smart Factory.” This includes the flexible, real-time networking of machines, services and people across different locations under certain conditions, with the aim of producing, using and sharing goods on-demand in a cost-effective manner. The key behind Smart Factories is their self-determined or intelligent use of all company areas over the Internet. However, the major difference for us to understand is that this technology not only affects the economy, but will directly affect society as a whole.

MORE: In what way?

An increasing number of people feel connected to certain brands, products and services. They are active, sharing pictures and content, commenting on events on social networks and making recommendations. Consumers are helping to shape industrialisation for the very first time in history. The desire to own or use certain products or services

is changing. People as individuals and as “Resourceful Humans” are acting in one or more roles at the same time, as a producer, service provider, customer or recipient of knowledge.

MORE: Is “Resourceful Human” the new “Human Resource”?

To put it bluntly, yes. As the Internet has continued to grow since the 1990s, the focus is no longer on the computer technology itself, but rather its socialisation, a complete covering of all areas of life and work. Social well-being is more important than increasing affluence.

People with networked thinking and business skills and those that keep an eye on the bigger picture – also known as “Resourceful Humans” are also in demand in the professional world. We are seeing a shift to place people at the centre. This requires a future-proof working concept for a fundamentally altered understanding of human possibilities and requirements in dealing with technology, natural resources, the environment and people themselves.



ABOUT

JIVKA OVCHAROVA

Born in Bulgaria, Jivka graduated from the Technical University of Sofia having studied Mechanical Engineering and then graduated from the Darmstadt University of Technology having studied Computer Sciences. After several years in a leading position in the automotive industry, she returned to the world of research. Jivka has been a Professor and Head of the Institute at the Karlsruhe Institute of Technology (KIT) since 2003, and has been the Director of the Research Centre for Information Technology (FZI) in Karlsruhe, Germany, since 2004. The Technical University of Sofia awarded her a honorary doctorate in 2011.

→ **MORE: What does that mean for personal development?**

People-centric technology requires people-centric methods. For engineers, this means stepping away from their individual workstations, task-oriented work processes and focussing on IT. This also means stepping towards virtual engineering with a team workstation, decision-making-oriented action and real-time and intuitive man-machine interaction. The key for success is digitalisation, making all necessary data and information available in digital form and providing complete and comprehensive IT support for all resource capacities and along all workflows. We can achieve this by training and qualifying “Digital Natives” at all levels throughout the company.

MORE: At least, that's the case in Smart Factories. Can small and medium enterprises (SMEs) ignore digitalisation?

No. In contrast, digital change is happening at the very bottom. In other words, in the mid tier, which is at the heart of our economy. Economic change without profound changes in every single company is unthinkable. The mid tier is playing a crucial role.

MORE: What do you advise SMEs do?
Small and medium enterprises cannot

implement digital transformation across all areas in one fell swoop. It is important to start with the key value-adding areas and to approach specific problems from day-to-day business step-by-step and with measures that are as easy to implement as possible.

MORE: And what measures have the highest priority?

Simplifying processes, developing new business models, organising value-adding chains into modules. According to a survey carried out by the Federation of German Industries and PricewaterhouseCoopers, eight out of ten companies expect to achieve faster information exchange and improved coordination between work and production steps thanks to the increased application of modern, digital technologies. Customers and suppliers are the most important cooperation partners and in doing so, networking smaller companies with external partners is much stronger than networking for larger companies.

MORE: Due to increasing data volumes, many are concerned about viruses, hackers and depending on digital services. Are these concerns justified?

The volume of digital data will multiply continuously. According to a study

by McKinsey, a full Boeing 747 now generates 240 terabytes of data for an internal flight alone. But this growing volume not only results in greater complexity, but also a shorter lifespan. We were previously talking about real-time. Data can lose its value in milliseconds. Handling data is also further complicated by the variety of data sources: from texts and videos to emails, blogs and sensor data. Just like in real life, absolute data security is impossible. Many safety risks can be predicted, but this presupposes a new safety culture.

MORE: What does this new safety culture consist of?

The decisive factor for handling large volumes of data productively and safely is digital training and qualified employees. This means digitalisations must also be incorporated into day-to-day business. In future, this service will not be awarded to an external service provider, but skills and expertise will remain within the company instead. Only then can a company's national and international independence be sustainably guaranteed when faced with digital technologies, services and platforms.

MORE: Thank you very much for talking to us.



Not only digitally networked, but also a networker, Jivka Ovtcharova founded the Lifecycle Engineering Solutions Center (LESC) and supports interdisciplinary applications to bring science, the economy and society together.



E_SOLUTIONS

“In future, companies will apply to
young employees, not the other way
round.”

Christian Schuldt, Futurologist
We're the young ones (pages 38 to 41)

We are EGGER

CĂTĂLINA NICHIFORIUC

Transport Management Specialist, Rădăuți (Romania)

For Cătălina Nichiforiuc, everything began on placement. In summer 2010, the business student from Rădăuți got a taste of working at EGGER and in 2011, she started work as a Transport Agent. The logistics expert wanted to be part of a competent team and speak proudly of her work. At EGGER, she does all of this now, especially when she has to overcome the challenge of shipping 4 000 m³ of OSB boards to Russia. Her daily work consists of calculating routes and tariffs, negotiating freight costs, booking transportation means and tracking deliveries. Every day brings new and more complex tasks, just the thing Cătălina Nichiforiuc was looking for as she is always keen to develop professionally. In her free time she tries to keep busy and she loves to ride her motorbike.



BRETT WILKINSON

National Sales Manager, Melbourne (Australia)

Brett Wilkinson's position is unique. He is not only solely responsible for all sales of EGGER products on one continent, but he is also working the furthest distance from the EGGER company headquarters. For the past four years, the National Sales Manager has been looking after and advising customers on the other side of the world. This task is simplified thanks to his prior knowledge from the timber industry, as well as the good reputation of EGGER products in Australia and New Zealand in relation to quality and innovation. When he is not at work, Brett Wilkinson likes to train at the gym and explore Melbourne's buzzing restaurant and café scene.

CHRISTIAN DAGN

Digital Application Consultant, St. Johann in Tirol (Austria)

Although he is only 25 years old, Christian Dagn has already spent 10 years with EGGER. The trained clerk is responsible for designing and developing applications such as the Virtual Design Studio, VDS. Using this software, you can try out floors and decors on a screen. In the past it would have only been possible to do this offline, but these days it is possible to do it online or even via an app on your smartphone. To remain one step ahead of change, Christian Dagn is also interested in working together with colleagues and key users in other countries. But sometimes he likes to take a trip down memory lane. He loves playing AC/DC songs on his electric guitar.





THE BRILON PLANT

Perfectly thought out

EGGER designed the Brilon plant itself.

What started as a chipboard plant has now developed into the Group's first fully integrated site thanks to the introduction of its own sawmill. We visited the plant.

AUTHOR Jörn Käsebier



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- 1 The log yard is always very busy. Articulated lorries and freight trains deliver wood to the Brilon plant every day and it is then sorted on-site.
- 2 High-quality raw materials: The saw mill delivers woodchips for MDF production at the plant.

The sawmill runs at full speed throughout the day. Lorryload after lorryload, roundlogs are delivered to the sorting plant. Wood is not only delivered to the EGGER sawmill in Brilon every day by around 120 articulated lorries, but also by freight trains. But before the spruce and pine trunks can be processed, they undergo strict quality checks by the employees at the roundlog sorting area. "Every trunk is scanned at four levels to check the quality. Our scanner is unique in Central Europe," explains Paul Lingemann, Head of Technology/Production.

The stored roundlog trunks are sufficient for one month's production

But the sawmill employees do not just rely on technology, they also keep their trained eyes peeled for signs of pest infestation or other anomalies. When doing so, they must work carefully and quickly because a new trunk arrives at the sorting area every three seconds.

Once the roundlogs have been debarked, a conveyor belt moves them to one of the 80 concrete boxes and then one of the metre-tall highlifters grabs them and

moves them to the correct pile. They are sorted by length, type, diameter and quality. Up to 80,000 cubic metres of timber can be stored in Brilon and the stocks usually contain around 50,000 cubic metres. "That is enough for 20 to 30 days of production," explains Paul Lingemann.

While the roundlog sorting area smells slightly damp and is reminiscent of a forest, the smell changes when you enter the sawmill. The comforting, warm-dry aroma permeates your nostrils, just like when you are working with wood on





3 As can be seen here, the plant processes a trunk every 1.2 seconds.

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→ your very own workbench. However, in contrast to the workbench in your workshop, the machines in Brilon are very modern. For protection, each trunk is measured once more using a laser before it enters the u-shaped production area. The processes are highly automated and there is hardly any need for human intervention. According to Paul Lingemann, when handling a natural raw material such as wood, it is unavoidable that a faulty piece gets through or a sawed trunk breaks every now and then. In these instances, an employee would intervene by removing unusable wooden pieces from the conveyor belt or stopping the machines in an emergency. “To be able to work efficiently, we keep our machines as up-to-date as possible,” says Paul Lingemann. This also includes EGGER's own fully automated sharpening department, which sharpens the saws and blades used across the entire plant.

Once the wood from the precisely stripped roundlogs leaves the sawmill, it is moved to one of 20 kiln chambers. It is then processed further. The combined heat and power generation system at the on-site biomass power plant provides the energy required to dry the wood. The chipboard and MDF/HDF plant is supplied with high-quality woodchips and sawdust via a conveyor belt. This method helps us to guarantee our wood-based materials are of a consistently high quality. The Brilon plant adds the greatest value – from the round trunk through all processing steps to the very last one. Brilon is the only fully integrated plant within the European wood-based materials industry under sole company responsibility.

Since last September, the plant has been producing premium lacquered boards from the PerfectSense range. “Quality expectations have risen. Customers no longer just want a glossy finish,

they now want to see their reflection in the finished surfaces,” explains Franz-Josef Susewind, Head of Product Management for Furniture and Interior Design. EGGER has responded to this trend by developing PerfectSense and in doing so, has started a whole new chapter in the site's history. “For Brilon, our expertise in lacquering gives us the opportunity to integrate production in the flooring production line, as well as being geographically nearer to the kitchen and furniture industry in Eastern Westphalia,” says Franz-Josef Susewind when listing the location's benefits. Nowhere else in Europe is there such a close relationship with customers from the wood-based materials industry.

Rapid, flexible reaction to increasing demand for PerfectSense in Matt

The decor boards are finished approximately 200 metres from Susewind's office. In this part of the



“Customers no longer just want a glossy finish, they now want to see their reflection in the finished surfaces.”

Franz-Josef Susewind, Head of Product Management Furniture and Interior Design

plant, the aroma of technology has replaced the natural smell of wood. Even the air's dust content is significantly lower because the production of these high-tech products cannot be put at risk by contamination. The production conveyor belt, which was originally built for flooring décor, can now also produce PerfectSense Gloss and PerfectSense Matt lacquered boards. In order to perfect the surface, EGGER, together with Hymmen, developed a special coating method. For this purpose, the melamine-faced MDF boards are coated with several layers of lacquer as part of a complex procedure. The surface is repeatedly hardened using UV rays and finely sanded multiple times during various processing stages. The cover layer is applied at the end in a clean room. The characteristic surface with a calming yet deep effect is created during a later stage using Calender Coating Inert (CCI) technology. This procedure

is used for both the Matt and the Gloss finishes. The wood-based materials manufacturer can react flexibly to customer wishes and increase or decrease the share of gloss or matt in production based on demand.

Franz-Josef Susewind has described the feedback received on the new product category as being very positive. “We seem to have found just the right answer to our customers' wishes.” He also believes the range will be extended and the site will continue to develop. “So far, we have always moved forward successfully here in Brilon.”

The on-site Design and Decor Management department is the key to a large proportion of the success of EGGER products in the Sauerland. Under the guidance of Klaus Monhoff, the department seeks out design trends at trade fairs and among creative



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4 Upon reaching the end of the production area, Andre Wiegelmann's team checks the surface of the latest PerfectSense products. They are then packaged for transportation.





5 The premises cover an area of approximately 570 000 m². This is the equivalent of 80 football pitches. Approximately 220,000 m³ of MDF/HDF board, 600,000 m³ of coated chipboard and 400,000 m³ of timber is produced here every year.



6 Peter Fabri coordinates the development of new decors with EGGER's partners, but also develops decors himself.



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THE STORY

BRILON PLANT

When the chipboard plant was constructed in 1989, it marked the start of EGGER's time in Sauerland.

In 1996, EGGER's first MDF/HDF plant was commissioned in Germany, and it was then rebuilt ten years later to increase capacity. Production of directly printed laminate flooring began in the same year using the DPR facility.

The Group's first sawmill was built in 2007 and commissioned one year later.

The EGGER Forum opened in Brilon in 2013. The short-cycle press (KT4) started work one year later.

The number of employees has risen sharply over the years: There are now around 1,050 employees.

→ processors and architects. It then incorporates them into the EGGER product range, in turn becoming a trendsetter within the sector. Our products, such as the Zoom collection, the "Feelwood" synchronised pore and cork⁺ flooring, amaze anyone who comes to our highly modern visitor centre that was opened in Brilon in 2013 and attracts a great deal of interest.

Digital print helps further expand the realms of the decor world

On the floor above the visitor centre, designers are working hard on our future products. Peter Fabri plays an integral part in this. Currently, he is focusing on coordinating decor developments for rotogravure using decor printers. He checks templates and examines the

print image closely, from the overall impression right down to the details, such as woodgrains, growth patterns and colour shading. "We are trying to recreate nature with our decors. A good decor recreates the template as closely as possible," explains Peter Fabri. In future, the qualified media designer will continue to use his trained eye to develop new decors to further extend EGGER's collection.

To do so, Peter Fabri is on the hunt for suitable templates, either at wood fairs or at the region's woodwork artisan companies. Once the decor designer has found the right timber material, he scans it in the plant using a large yet precise scanner. He then processes the high-resolution digital image on his two specially calibrated screens. "A file

like this can be as big as eight to ten gigabytes," he explains. He carefully processes the images in Photoshop. It can take three to four weeks to achieve the perfect result.

Other employees at the Brilon plant are also discovering the possibilities of digital printing. "Our aim is to reproduce decors and to make them available for various tasks," explains Peter Fabri. Until now, digital printing has only been suitable for certain applications and sizes but that could change in the years to come. It is for that reason that Peter Fabri believes digital printing will become more significant in future. This could then represent another possible area of growth for Brilon. The number of delivery trucks and trains will certainly not be decreasing any time soon.





Satisfaction is key

Thanks to digitalisation, it is easier for companies to ask for customers' opinions and gain new customers. But the volume of information also grows with it. New methods help to filter out the most important information.

AUTHOR Johanna Rüdiger

Confectionery and baby food are the two sectors with the most loyal customers. At least, that's according to the latest "Loyalty index" compiled by the market research institute, Facit für Deutschland. To generate this index, participants were asked online about 104 brands across 16 different sectors focusing on chocolate and baby porridge. At first glance, this makes sense as customers can quickly build up a positive relationship to these products. But the loyalty index is not only based on loyalty as the name would suggest, but also on customer satisfaction, which was also taken into consideration as part of the evaluation. Empirical studies have confirmed that high customer satisfaction is a must for establishing a loyal relationship.

For a long time, conducting regular surveys amongst a representatively chosen customer base was the only way to determine the target group's wishes and opinions. But the more companies want to know how products, services, delivery and claims management are perceived, the greater the imposition on customers who have to spend time answering all these different questions.

a link to a questionnaire that has been translated into a variety of languages. "As part of the 2013 Customer Satisfaction Study, we received nearly 2000 responses, meaning we could evaluate the results in detail by division, country and customer group," explains Daniel Weih, the responsible Project Manager at Consultic.

This produced a lot of information that needed to be evaluated meaningfully and that is also difficult. The increasing stream of data is a new challenge to overcome when researching customer satisfaction. Economist Armin Töpfer, Head of the market-oriented management research group at the Technical University of Dresden, warns against creating "number graveyards." He has researched how to measure customer satisfaction for many years and praises the benefits of statistics programs such as SPSS. But he also knows the disadvantages. "The decision-makers in a company are not interested in statistical details, they want the key findings and also to be shown where there are deficits."

For this reason, statistical data volumes are transformed into meaningful indexes. They allow comparisons to be drawn and at best provide a reliable indicator for quickly and accurately deriving the right measures from these comparisons. One of the most well-known indexes is the Net Promoter Score (NPS), which details how likely or unlikely a customer is to recommend a company or a brand. In contrast, the Customer Satisfaction Index (CSI) shows customers' overall satisfaction with a company.

The Pareto Priority Index (PPI) is used to establish specific starting points for making improvements. "Using this index, we can identify the importance of individual features, the manufacturer's performance overall and in comparison with competitors and which changes are most needed." It is these changes that particularly interest Andreas Hoskovec, Head of Sales Controlling at EGGER. "As part of our most recent survey, we not only contacted our direct customers, but also our customers' customers." He



"Decision-makers are not interested in statistical details, they want key findings."

Armin Töpfer, Professor at the Technical University of Dresden

If the target group questioned is correspondingly small, the results from these surveys conducted in person, over the phone or in writing also tend to be small. Until now, there have been natural limitations on attempts to expand the customer circle beyond personal surveys to a semi-anonymous crowd. High hopes have now been pinned on new digitalisation tools. Among other activities, the Consultic Marketing & Industrieberatung agency runs online surveys for EGGER. As part of these surveys, various customer groups receive an email containing



Customers like to be able to choose from a wide range of products. A pan-European customer survey conducted by EGGER also showed that there is significant market and customer potential for flooring with an obvious customer benefit. To win this section of the target group, the flooring must meet the following criteria: warm, soft, quiet and durable. Based on these findings, EGGER has developed the innovative Cork⁺ and is now increasing its market share in the highly competitive flooring market.

ensures that any criticism is taken on board as far as possible. "The results are broken down in detail by country and market so that we can make specific improvements in each location." If there are complaints about delivery times in a certain market, he sees this as something that can be changed immediately. But experienced sales experts agree on

one thing. Despite all the benefits of digitalisation, traditional methods will still play an important role in future. Sales representatives will continue to gather feedback from customers when meeting them face-to-face. As part of well organised Customer Relationship Management (CRM), this feedback must be entered into the CRM system. Combining the results from indexes,

surveys and sales employees' personal meetings can provide a reliable picture. "This provides us with a deeper understanding of the reasons behind customer dissatisfaction and also where a company's strengths lie," explains Daniel Weih. Digitalisation may widen the customer circle, but customer contact is best kept personal.

INDEXES

NET PROMOTER SCORE (NPS)

This method stands out for reasons of simplicity. It asks customers only one question: On a scale of one to ten, how likely is it that you would recommend the company or product to a friend or colleague? Customers who respond with a score of 9 or 10 are known as "Promoters" – they are emotionally involved with a brand.

CUSTOMER SATISFACTION INDEX (CSI)

The proven instrument helps to determine

a company's strengths and potential from a customer's point of view. The index also provides an indication of a company's strengths in comparison with competitors. One particular feature of this method is that it continually evaluates customer satisfaction and therefore illustrates trends.

PARETO PRIORITY INDEX (PPI)

As the name suggests, this method helps to evaluate data material, ranking tasks in priority order from being key to being insignificant.

The PPI is calculated by weighing the savings and the probability of success against the cost and time of completion. A higher PPI suggests urgent action is required.

KANO ANALYSIS

This method sheds light on how customer satisfaction develops. Above all, the parameters are derived from the influence of product characteristics on customer satisfaction, while taking the price-performance ratio into account.



We're the young ones

15- to 20-year-olds are flooding the job market.

What experience can today's young professionals offer and what does it mean for companies?

AUTHOR Meike Wöhlert

In the past, a cobbler's father was also a cobbler, just like his grandfather before him and his son after him. Nowadays, careers are changing in time with the generations. This exacerbates the differences between generations and makes cooperation in the workplace difficult – companies must always adapt to their youngest employees. Today's youngest employees have something in common as they have grown up with the Internet and mobile devices.

Anyone born after 1995 has grown up in the era of globalisation and has a very close relationship with digital media. A non-stop society, perpetual networking and instant, unlimited access to all kinds of data are all completely normal to the younger generation in industrialised and emerging countries. A significant proportion of their communication is via smartphones and online channels.

Multitasking and quickly gathering simple content is like child's play to them. It has not been proven whether this media-consumption behaviour has a negative effect on their ability to concentrate, as is often claimed. But it is certainly at the expense of their social skills, explains Christian Scholz, Professor of Organisation, Human Resources and Information Management at the University of Saarland. In April 2015, Mr Scholz wrote a guest post for the online portal *Human Resources Manager*. In the article, he stated that young people are “extremely focused on their own goals and are definitely not team players.” And for good reason. To manage all the information available in their microworld of Facebook, WhatsApp, Snapchat and Instagram, 15 to 20-year-olds already have too much to do. Just like Brand Managers, they are responsible for their own brand that they have to present online twenty-four hours a day.

That is at least something they have in common with companies. Even future trainees are already well connected. School graduates look for information online and not only look on companies' own websites, but also look across all channels, from Wikipedia to social networks. If the employer does not meet their expectations, the job seeker will click away quickly. Christian Schuldt, Futureologist and Specialist for Digital Transformation, summed it up perfectly in his *Youth Economy* research published



“Every trainee has at least one smartphone. It is easier for them to communicate that way than face-to-face.”

Daniel Schall, EGGER Instructor

in April 2015: “In future, companies will apply to young employees, not the other way round.”

No worries about the future

The new kids on the block have a reason to be optimistic. Even if Africa and Southern Europe are still struggling with high youth unemployment following the 2008 financial crisis, globally speaking, these figures have diminished according to information from the International Labour Organization (ILO). Birth rates are also dropping around the world. In North America, Europe, Russia, China, Japan and Australia, it remains constantly low, but in countries such as Brazil, Iran and Bangladesh, a significant decline in population has been observed. With that in mind, as the percentage of young people in a society decreases, their importance increases. →



Being a boss is out, being a mentor is in. Throughout the world, young employees want their superiors to be understanding and communicative. Management need to rethink and learn to retain their trainees.

→ Even the job market works on the basis of supply and demand. As a result, many companies around the world have boosted their recruitment budgets, extended their Internet presence and launched image campaigns. While in the past it was sufficient for a company representative to visit a school to recruit trainees, entire classes of final-year students now move through production halls. Those who want to defy the competition will have to rely on offering extra benefits, whether it is a free shuttle bus, an English conversation class, a better canteen or a competition for trainees where not only honour and glory are at stake, but also monetary prizes.

The most important thing is to understand young people. Their world is fast-paced, transient and flexible. An atmosphere of latent threats, economic crises, climate change, war, displacement and terrorism have led to the YOLO principle of “You only live once.” Everything is possible,

everything changes. Borders, gender roles and traditional power structures are dissolving, even in companies. In countries that are more traditional, many young employees are seizing this opportunity. They often cope better in a more modern company environment than older colleagues, who are used to fixed processes and clear hierarchies. Young people value achievement-oriented work, creativity and individual responsibility. They are ready to get stuck in, not just for their employer but also to make professional progress themselves.

It goes without saying that there are also ambitious young professionals in western industrialised countries. But many are conscious of succumbing to the widespread disease of burning out. Rather than fighting for the perfect work-life balance like their chronically exhausted parents, they want flexibility within a stable set-up. The latest Shell youth study published in October 2015 made reference to a “pragmatic

generation”. As a result, having sufficient free time counts for far more among 15- to 25-year-olds than a high income, for example. In general, a career at any price and working until you drop are not particularly desirable. Under certain circumstances, productivity could even benefit from this.

Money and status are no longer enough

Conversely, this also means that companies must find other incentives beyond money and status to motivate their trainees. This was something PricewaterhouseCoopers (PwC), an American auditing and consulting company with a company network across 150 countries also experienced. In 2013, the company commissioned the *NextGen* study and immediately made changes based on the findings. To summarise, control is good, trust and communication are better. Whoever gives young employees, regardless of where they are in the world, feedback

and room to grow will be rewarded with engagement. Similar results were reported in a research project entitled *Inspiring Your Future Workforce* that was presented in January 2015 by the Centre for Executive Education, a coaching company based in Singapore. The results showed that 95% of young professionals aged 16 to 19 described their ideal superior as a trainer or mentor who can communicate and listen well.

10,000 kilometres west of Singapore, Sebastian Gruber, 17, shares the same viewpoint as his Asian contemporaries. The budding electrical engineer is in his third year studying at EGGER's Maintenance department in St. Johann in Tirol, Austria. He thinks his boss is great because "he talks to us a lot and engages with us." Of course, Gruber has a smartphone, just like all the other electrical engineering trainees. There is a dedicated Facebook group for the trainees, as well as a WhatsApp group that they use to arrange to play football after work. Since September 2014, the German and Austrian trainees have even been running their own blog. On the blog, the editing team from Wismar is quoted as saying: "It is really important for us that EGGER really looks after its next generation and that we just don't spend our time sweeping and mopping."

One of the people tasked with looking after the trainees is Daniel Schall. The electrician acts as a trainer at the French EGGER plant in Rambervillers. Every one of his trainees has "at least one" smartphone. And Mr Schall does not have to think long and hard whether their constant use has an effect on their day-to-day work. "Absolutely! They really know their stuff when it comes to online tools but they really struggle to contact other colleagues." Why? Daniel Schall says, "I think they find it easier to communicate via computer or phone than with people face-to-face." This can be a real challenge among colleagues. But once they have learnt to value relationships with colleagues, it ties them to the company. For example, trainee Sebastian Gruber has his roots in his Tyrolean homeland and "certainly" wants to stay at EGGER. However,

flexibility and geographical mobility are a given for his generation. In future, companies will not only have to put in the effort to recruit qualified trainees, but also to keep them. Nevertheless, they will also have to be prepared for young employees to come and go far more.



"The ideal boss? Someone like our workshop manager. He talks to us a lot and engages with us."

Sebastian Gruber, trainee in Austria

PRACTICAL TIPS

HOW DO YOU RECRUIT YOUNG PEOPLE?

- Think beyond job adverts. New methods such as pop-up events and speed recruiting appeal to young people. For example, Daimler even offers those who are interested the chance to accompany an employee via WhatsApp for a day.
- An up-to-date online presence with videos and interactive content in the style of "Which job suits me?"
- Whoever can offer young employees a pleasant working atmosphere and exciting tasks will be recommended online as an attractive employer.

HOW DO WE KEEP THEM IN THE COMPANY?

- Flexible working hours and the option to develop further are high up on the priority list. One way to approach this would be to offer training programmes and taster days shadowing a colleague.
- Distributing tasks based on an employee's generation is welcomed by technically-minded young professionals and takes the pressure off older employees who find it difficult to use mobile devices.

- Flat hierarchies promote engagement and initiative. If you are expecting a young trainee to take on a management role in future, give them team responsibility.

WHAT CAN WE LEARN FROM THEM?

- A modern management style: If managers scare off competent young skilled employees, it will reflect on them negatively. This presents an opportunity for companies.
- Better communication: Young people expect timely reaction and feedback, just as they would find on social media. Performance reviews are a must for any employer.

WHERE SHOULD WE DRAW THE LINE?

- Because of social media, young people are used to constantly expressing their opinions. If this puts industrial peace at risk, or prevents decisions from being implemented, it is necessary to talk to them.
- Be careful with company secrets, prototypes and patenting procedures. Those who are young tend to draw less of a distinction between their personal and professional lives and may share things that are not intended to be made public.



E_NATURE

“We want to encourage you to see
every component of the product you
develop as an item on loan.”

Michael Braungart, Chemist
Circular thinking pays off (pages 44 to 47)

Sustainable living



FLOATING TOMATOES

www.studiomobile.org

Agriculture that does not require soil or fresh water, but rather works using salt water and brackish water? It may sound like science fiction, but it is known as a “jellyfish barge.” Two architects from Treviso in Italy have built the 70-square-metre jellyfish-shaped wooden greenhouse that floats on recycled plastic drums. The water below is cleaned or desalinated using solar distillation and used on the inside to grow vegetables without needing any soil. With a simple design built using cheap materials, the jellyfish can bring food security to poor people in coastal areas.

NATURAL SOUND

www.audioquest.com

Eco for the ears. The earcups on these headphones are made of liquid wood. To create this material, lignin – a bi-product of the pulp industry – was combined with natural fibres, resins and waxes, heated and then injection moulded. Rather than being lacquered, the liquid wood is coated with a resistant UV layer. Other environmentally friendly elements in the Nighthawk headphones include cellulose membranes and a soft bio-plastic made from resin and egg shells. It is no surprise that these headphones won the 2015 Best of CES Innovation Award in the Eco-Design and Sustainable Technology category.



BEETLE HOUNDS

www.anoplophora-spuerhunde.ch

Willow, poplar, maple, fruit trees – the Asian longhorn beetle is not fussy when it comes to eating and is therefore one of the world's most dangerous pests. The black-and-white beetle with long antennae from East Asia has arrived in France, Italy, Croatia, Austria, Germany, the Netherlands and Switzerland via construction and packaging wood and as a result of the bonsai trade. If a tree becomes infested with larvae, it must be felled, shredded and burnt. Dogs' noses are an effective weapon used to combat their spread. Switzerland and Austria are now training tracking dogs to sniff out the eggs and larvae. They are even being awarded diplomas.



It has become the global symbol for the recycling industry. A bag made from truck tarpaulin manufactured by Freitag, a Swiss company founded 20 years ago.

Circular thinking pays off

Nature shows just how the economy can function: A “circular economy” business philosophy is becoming ever more widespread.

AUTHOR Martin Hildebrandt

In summer 2014, Ikea sealed its own fate – at least in theory. The Swedish furniture manufacturer operated a very accommodating right of return in Germany, Great Britain and Spain. If a customer no longer liked their Ikea kitchen, they could simply return it and get a refund. Forever. If all customers used this service, the Swedish furniture company would be facing a big problem. But in the first year following its introduction, the number of returns in Germany only rose by 10% according to Ikea. It seems the benefits outweigh the risks. The risk of making the wrong purchase is lower for customers, lowering their inhibition level for buying a product.

However, the company justifies its generous right of return ecologically in terms of a circular economy. Any used goods that are returned are not thrown away, but are instead donated to community facilities or used as raw materials for new products.

The furniture company sympathises with the ever popular cradle-to-cradle philosophy.

With its generous right to return, Ikea is causing a stir. The company has admitted to a circular economy.



It suggests that, at the end of its life cycle, a product returns to its “cradle”, in other words, to its manufacturer. The German process engineer Michael Braungart and the American architect William McDonough are campaigning for society to change the way it thinks from throwing things away to embracing a circular economy. They have convinced American politicians and companies of their approach. As a result, the Swedish furniture manufacturer is a member of the Circular Economy 100 (CE100). Members of the CE100 club include famous names such as Cisco, Coca-Cola, Dell, Ebay, H&M, Michelin, Aquafil and →

As part of the material cycle, old wood is reused in wood-based materials. Waste wood-based materials and sawdust are then transformed into valuable sources of energy. Peter Lattrich is the Managing Director of the EGGER recycling business, Timberpak in Lehrte (Germany).



→ Unilever – certainly a serious group of advocates for the circular economy. The basic principle is simple and sounds convincing. The Cradle-to-Cradle (C2C) motto states: “If people recycled all their waste, there would be no more rubbish and sufficient raw materials for all.” The principle is modelled on nature, which works cyclically. It does not consume anything, but rather transforms it. The founders of C2C are transferring this cyclical thinking to the economy. “We want to encourage you to see every component of the product you develop as an item on loan,” explains Michael Braungart, “as an element that one day will be returned to the biosphere or technosphere.”

But these authors and activists have not reinvented the wheel. The circular economy is a historical approach that is applied in a variety of ways in Europe. Every forester knows that he loses his forest if he fells more trees than he

plants. Even returning goods to the manufacturer has been a familiar notion for many years: bottles with a refundable deposit and bottle banks.

In principle, the Cradle-to-Cradle approach is a good one, but it still has its weaknesses, as explained by Moritz Bühner, EGGER Product Management Core Products and Environment. “Generally speaking, the idea behind a circular economy is the right one.” But we also have to consider transport. “The energy that is required for collecting and preparing secondary raw materials must also be taken into consideration, but it is completely missing in the C2C diagrams.”

It is not always worth transporting one shelf from a Scottish island back to the manufacturer. Where possible, burning the shelf would be the more environmentally friendly option. However, EGGER certainly organises

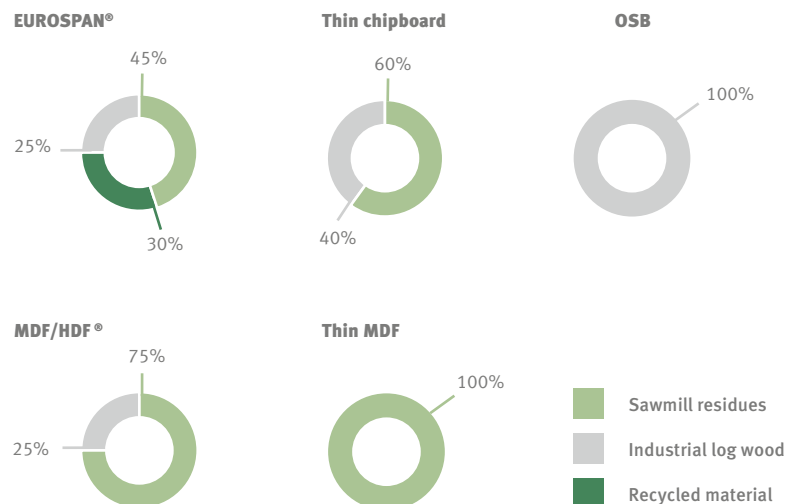
its production in material cycles. The positive effect of material cycles is seen in EGGER's environmental footprint, which can be traced in environmental product declarations (EPDs). These declarations document a product's effects on the climate and environment in detail, from harvesting in sustainably cultivated forests through to the energy consumed during production.

Cascading consumption is an absolute necessity, both in terms of material use and energy use. High-quality roundlogs are used to manufacture timber and the branches and other sawmill products are used to manufacture wood-based materials. Only those materials that cannot be used any further are used as biomass to generate electricity, just as EGGER does at its own biomass power plants. Regardless of environmental considerations, the usage cascade represents a responsible, economically sound budget for handling resources



Proportion of recycled material in EGGER products

When manufacturing wood-based materials, EGGER pays close attention to the proportion of recycled material, be it as pre-consumer recycling such as with sawmill residue or post-consumer recycling with recycling old wood. In some circumstances, recycled materials are not used for products where it makes more sense to manufacture them using industrial roundlogs.



and raw materials. “Wood is far too valuable to simply throw it away,” explained the late company founder Fritz Egger senior.

C2C certification procedure that is not fully transparent. The C2C promise to produce in an environmentally and socially minded manner is misleading because many criteria simply relate to the last production stage. So while toothbrushes and cupboard walls may be recycled in an environmentally efficient manner, much remains in the shadows and is tackled more closely by other approaches. For example, the previously mentioned EPDs instead include the effects of every upstream production stage and information is provided directly in the EPD about who has certified it.



“The energy used for the collection and preparation must also be included in calculations”

Moritz Bühner, Product Management Core Products and Environment

From 2020, Ikea will recycle all plastic materials and wood-based materials that accrue during production. However, the company is foregoing the C2C label – just like EGGER. Moritz Bühner from EGGER explains this is due to the

Wood is mankind's oldest and most natural raw material. Those who work with wood sense how the material lives and just how significant a gift from nature it is. It is therefore self-evident that we need to treat this gift carefully and sustainably.

FIVE THINGS ABOUT

Maple

This deciduous tree can do almost anything. Provide strength, look good, sound good, ease inflammation, represent the second largest country in the world and it delivers far more than just wood.

1 THE TREE

The *Acer* species is only found in the northern hemisphere. Deciduous trees from the soapberry family prefer the temperate climate in Eurasia, North Africa, Central and North America. Many of the 200 varieties were originally only native to Europe but became extinct during the last ice age. The sycamore maple, Norway maple and field maple survived. Many varieties feature the characteristic hand-shaped leaves that change colour beautifully in autumn. Fresh maple leaves act as a decongestant. In the past, they were also thought to offer protection against witches.



2 THE STRADIVARIUS

Violin makers use spruce and maple because these woods offer the best vibration properties and can be worked until they are very thin. Hard maple is traditionally used for the back, ribs and neck – and the same is true for a Stradivarius. But we still do not know why it makes its distinctive sound. The cool climate in the 17th and 18th centuries may have played a role as the trees grew very slowly and evenly, or even storing the trunks after immersing them in Venice's lagoons where they absorbed minerals may have played a role.



3 THE SYMBOL

The Canadian red and white flag featuring a maple leaf was first hoisted in 1965. While the original had 23 points, the stylised version only has 11 points; when tested in a wind tunnel, this design was shown to be the clearest. Other countries also include native trees or their leaves on their flags, such as Belize (mahogany), Lebanon (cedar) and Equatorial Guinea (mangrove).



4 THE DECOR

In contrast to the softer European maple, the North American “hard maple” is as strong as oak. Thanks to its appearance, maple wood is also a firm favourite for parquet flooring. The fine-pored surface appears smooth and sleek. The price varies depending on the variety chosen. The lighter premium variety hardly has any markings but it will darken over time, just like any maple. Those who like its appearance but are looking for a light-fast, environmentally friendly solution would be well advised to take a look at EGGER's maple-inspired laminate flooring collection.



5 THE SYRUP

Maple syrup is derived by tapping the sugar maple tree native to eastern North America (*Acer saccharum*) and boiling the sap. There is only a brief window for doing this though. The starch stored in the trunk is only turned into sugar between the end of February and the beginning of April. Nowadays, entire forest areas are networked together using plastic pipelines to enable industrial production. The tree sap flows to a central collection point, then is guided to evaporation tanks and poured into casks.





THE CUBE

Completion: 2015, storeys: 10

Among European cities, London has one of the highest numbers of skyscrapers. Since last year, this has also included one made of timber. It is a ten-storey hybrid building that is principally designed to be a residential building. The architects from Hawkins/Brown opted for a concrete core, steel elements and a cross-laminated timber solid wood construction. Elements protrude from the cube so that every apartment receives as much daylight as possible.

Clash of the timber skyscrapers

For many years, skyscrapers made of wood were out of the question in many countries. But things are starting to change. Architects are setting ever higher standards. We look at the race to be named the world's tallest timber skyscraper.

AUTHOR Patrick Fink

If the 42 storeys design by the architects at Skidmore, Owings and Merrill (SOM) became a reality, it would have resulted in the world's tallest timber skyscraper being located in Chicago. At 120 metres tall, it would not have been anywhere near as tall as the famous Willis Tower, which at 442 metres is the city's tallest tower. Based on the material choice alone, the building would have stood out from its neighbouring giants made of concrete and steel. It is still being discussed whether the ambitious plans will become reality.

The architects at SOM have proven that they can design skyscrapers as they were the team behind the Burj Khalifa in Dubai, currently the world's tallest building. But their design for Chicago will simply remain a vision for now. These architects are not the only ones who want to build tall using timber. Across the world, the race is on to be named the “world's tallest timber skyscraper”, in other words the tallest building to be predominantly made from wood. For a long time, modern wooden-construction buildings have been limited to seven or eight storeys, partly due to fire regulations in different countries making it hard for architects and builders to build tall timber buildings. But by using innovative methods, these boundaries can now be pushed further. Together with his team,

architect Hermann Kaufmann developed a timber construction system that relies on a composite solution of timber and concrete that does not feature any load-bearing walls. This particular system was first used to build the eight-storey “Life Cycle Tower One” in Dornbirn in Austria. Kaufmann sees it as a blueprint for building even taller timber buildings.

The first timber skyscrapers may soon appear in New York's skyline

The Canadian architect Michael Green has similar ideas. In his manifesto “The Case of Tall Wood Buildings”, he argues in favour of wood construction and shows that buildings made from this natural raw material are not only possible but also provide many advantages. But until approval is granted, Michael Green must convince a lot more people. In his Canadian homeland, timber buildings are limited to six storeys, which is why the architect was limited to this height when building the Wood Innovation and Design Centre in British Columbia. However, he designed a timber skyscraper with 30 storeys for Vancouver.

The realisation that it is possible to build in an environmentally friendly way using this natural raw material is taking hold among public authorities in North America. As part of a competition last



LIFE CYCLE TOWER

Completion: 2012, storeys: 8

One of the pioneering trailblazers for these new timber giants can be found in Dornbirn. It was the first eight-storey timber building in Austria. Architect Hermann Kaufmann and his team developed their own timber construction system that does not feature load-bearing walls and is setting the standard in terms of resource efficiency. For fire-safety reasons, the “Life Cycle Tower One” hybrid building features concrete layers between the storeys. Part of the façade, that is predominantly clad in recycled metal, is made of concrete.



PUUKUOKKA

Completion: 2015, storeys: 8

Finland's tallest timber building is in Kuokkala and is part of a complex consisting of three apartment buildings. The residential buildings are built on concrete foundations and are largely made from prefabricated modules. This results in a build time of around six months, which was important when taking the brief Finnish summer into consideration. When designing the building, the planners chose to use cube-shaped modules made from spruce cross-laminated timber. Every apartment consists of two modules – one is used for the living room, bedroom and balcony, and the other serves as the bathroom, kitchen and entrance area.



PATCH 22

Completion: January 2016, storeys: 7

The ground floor of "Patch 22" is made of reinforced concrete but the subsequent six storeys are made from wood, making this the tallest timber building in the Netherlands. The 30-metre-high, sustainable building designed by Frantzen et al architecten features a timber cavity ceiling construction that allows changes to be made to the sanitary, heating or electrical installations at any time.

→ year, the U.S. Department of Agriculture tried to promote timber construction projects. Both winners, one from the west coast and the other from the east coast, have been granted permission to build a skyscraper in New York. The city that has one of the world's most famous skylines may soon feature a timber tower too. Shop Architects are planning a ten-storey residential building on a plot of land just a few blocks from the Empire State Building.

In European countries where wood construction has long since been seen as traditional, architects have reached these heights already and are slowly building upwards. For example, "The Cube" was completed in London last year. However, the ten-storey building on Wenlock Road lost the title of Europe's tallest timber building just a few months later to "Treet." This residential building in Bergen, Norway, is 14 storeys high.

According to current plans, 22-storey buildings could soon be built in Stockholm and Vienna

"Treet" may well be overtaken by other projects in Scandinavia soon. As the raw material is readily available and the climate is just right, builders in Northern Europe have long since used timber as a construction material. In Stockholm, the Swedish construction company Folkhem is planning to build the "Cedar Manor." Like its Norwegian neighbour, it will have 14 storeys but will not be made of modules, instead will have a solid laminated-timber construction. Only the foundations will be made of concrete, otherwise it is a building made purely of Canadian maple. The construction company also wants to apply the same principle to another project - a 24-storey residential building. The "HoHo" timber skyscraper in Vienna is also planned to reach the same dizzying heights and is due for completion in 2017. For this particular construction, the architects at RLP have opted for a timber and concrete hybrid construction. Further timber skyscrapers may also be built in the Far East. Although the property boom has passed for the minute, China's market power should not be underestimated. Timber houses would significantly improve the Chinese property sector's environmental footprint. And what is stopping future timber buildings reaching for the skies?



HOHO

Completion: 2017 (planned), storeys: 24

According to the architects at RLP, when the “HoHo” timber skyscraper is complete, residents, hotel guests and office users alike will have a fantastic view over the seaside town of Aspern.

The building planned for Vienna will feature a hybrid construction. Timber elements will be placed around the stiffened concrete core, meaning approximately three quarters of the building will be made from the natural raw material. The layouts of the apartments and offices are designed to be flexible so that the skyscraper remains fit for purpose in the long term.



TREET

Completion: 2015, storeys: 14

It took just over six months to build the “Treet” building (Norwegian for “tree”). The build time was so short thanks to the use of pre-fabricated modules. The design by the Artec architect office was made reality in the old Hanseatic city of Bergen. Glulam supports and two intermediate storeys act as the load-bearing elements in the residential building. The modules were placed on these supports, as well as on the concrete cellar. Cross-laminated timber was used in the lift shaft, as well as on the balconies and interior walls. Glass and metal cladding protects the load-bearing timber against the weather.



K8

Completion: 2014, storeys: 8

The prefabricated house manufacturer, Kampa, constructed its eight-storey company headquarters in Aalen-Waldhausen, Germany. The commercial building features a timber skeleton structure. The load-bearing elements are made of solid wood using cross-laminated timber and laminated timber construction. A total of 1350 cubic metres of wood was fitted. The prefabricated elements were built in ten months. When designing the administrative and exhibition building, Nagler Architekten particularly focused on energy efficiency. Thanks to highly insulated building envelopes and modern heating and ventilation systems, the building's energy demands are fairly low. As the photovoltaic system installed on the roof generates more energy than is consumed by the building, it has been named an energy-plus house.

PICTURE PUZZLE



Treehuggers wanted

In the past, there were only four ways to shape wood - sawing, planing, turning and carving. Yet in the mid 19th century, a joiner from Boppard am Rhein came upon the idea of making copper beech struts flexible by using steam and forcing them to dry in cast-iron moulds. The design pioneer became one of the founding fathers of industrial furniture production with factories throughout Europe. His greatest achievement came in the shape of the extremely simple “no. 14 chair” made in 1859. The model was made of six wooden pieces, ten screws and two nuts. It was even straightforward to distribute the chairs. 36 flat-packed chairs fitted in a 1-m³ box. They were sent throughout the world and

assembled upon arrival. The founder of bentwood furniture died in his adopted home town of Vienna in 1871 and a street was named after him in 1953. Even now, you can sit on one of his chairs at the Hotel Sacher café.

Who is our treehugger, the designer behind Viennese coffee-shop chairs? Send his name to **MORE@egger.com**. We will randomly choose a winner from all the correct entries received. They will receive a wooden WeWood wristwatch in Jupiter Beige. The deadline is 31/07/2016. The judges decision is final.

EXPO winners

The wooden link in the picture puzzle in MORE 07 stood for Leonardo da Vinci. Thank you for your answers.

Here are our Treehuggers from MORE 07: Jürg Kunz (Dobas AG), Christina Dürnberger (Johann Dürnberger GmbH & Co. KG), Florian Malterer (Gebhardt-Holz-Zentrum GmbH), Stefan Engel (Erwin Krüger KG) and Martina Minihold (Konrad Brunner GmbH) each won a weekend trip to the Milan EXPO fair for two people.



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