

GOING DIGITAL

# THE MANAGER'S PERSPECTIVE

How is digitization already making itself felt? And how are managers and their companies gearing up for the “fourth industrial revolution”? Some answers from the executive floor.

**“In a few years we'll smile at today's technologies”**



**ARMIN POHL**  
CEO OF MACKEVISION  
MEDIEN DESIGN GMBH



Mackevision brings complete digital landscapes to life, as shown here in this scene from the *Game of Thrones* American fantasy drama series.

I have been producing digital media for the past 25 years. In this world, a month is more like an eternity. The pace of change is extremely fast. Back when we first started out, we would type in code all day just to create a single 3D image. Today, we can achieve that in a matter of minutes. The computers we worked with cost tens of thousands of marks, but were less powerful than a basic smartphone.

ist, like the Porsche Mission E. It is also commonplace to combine real and virtual images in movies. And virtual creations serve more purposes than visualization alone: for example, they are modifying business models by enabling customers to configure their own individual products and assess all the features before ordering them.

And the possibilities are far from exhausted. In a few years we'll look back and smile at today's augmented reality aids such as video glasses. Computer-generated images will be projected directly onto the retina, and we'll be able to

look around in a movie or a configurator without any type of data glasses, just as we do in a real environment.

**Mackevision Medien Design GmbH specializes in computer-generated imaging (CGI).**

**This includes computer-assisted product visualization as well as animation and visual effects for images, videos, and interactive applications.**

**“We learn from start-ups”**



**DR. ALEXANDER ERDLAND**  
CEO OF WÜSTENROT & WÜRTTEMBERGISCHE AG  
AND PRESIDENT OF THE GERMAN  
INSURANCE ASSOCIATION (GDV)

In order to meet our customers' wishes, we need to see the world through their eyes. This has prompted us to take new approaches as well, such as our internal W&W “digital workshop” start-up. We are now able to develop digital solutions and business models at high speed that are tailored to the needs of our customers. This project has been so successful that we have founded our own company—W&W Digital GmbH—together with our partner, the “etventure GmbH” digital consultancy and start-up builder.

Digitization has triggered two huge changes in the book market. For one thing, readers now buy books from online shops or via apps; second, books themselves have become digital. Both of these trends, which are accelerating, have initially had an adverse effect on brick-and-mortar stores. Changes in customer behavior in Germany generally lag two or three years behind those in the USA—but the trend is clear. We expect to see readers continue to gravitate toward digital technologies in the future, albeit in moderate form. They will be using a wide range of devices and apps, like HTML5 on smartphones and tablets, and they will also be seeing greater use of digital touchpoints for selling books.

Nevertheless, we are convinced that brick-and-mortar stores will continue to be very important for customers, especially for in-store book pick-ups. Our customers are showing ever greater levels of hybrid behavior, i.e. they are using all different types of networked sales and access options. Our job is to provide individual, personalized, and high-quality advice

and support at every touchpoint. The greater amounts of data now available give us the chance to adapt our product ranges even more quickly to the latest customer needs.

**“Our customers take a hybrid approach”**



**MICHAEL BUSCH, CEO OF**  
THALIA BÜCHER GMBH



**Thalia.de** With nearly 300 stores in Germany, Austria, and Switzerland, Thalia leads the German-speaking market served by retail booksellers. Its Tolino e-book reader serves as an open digital ecosystem that enables users to access services from different providers.

From our point of view, digitization offers great opportunities. To use them, companies need to be open to making structural changes. Financial service providers can learn something here from small, flexible start-ups. They use agile project teams, pursue iterative development processes, and regard mistakes as opportunities for improvement. After all, you can only create something new by trying out a lot of other things first. In transferring these abilities to the financial sector, management personnel have a crucial role to play. In addition, it's also important to handle large volumes of data in sensible ways. We can use them as the basis for identifying and proactively meeting customer requirements and wishes, in order to increase their satisfaction.

**Founded in 1999 from the merger of the long-established Wüstenrot and Württembergische companies, W&W offers a combination of home loans and insurance. The Stuttgart-based group is listed on the stock exchange.**



## “We want to be among the first”

**DR. GERHARD RÜBLING**  
CEO OF TRUMPF GMBH & CO. KG

Over the past ten years Trumpf has perfected its main production process on metal processing machines. Computer-controlled improvements in auxiliary processes such as offers, finishing, shipping, and invoicing for our customers are now generating highly interesting potential. To make use of this, what's needed is not only vertical connectivity among machines, plants, and the cloud, but also horizon-

tal connections with partners and customers. That is why Trumpf founded its Axoom subsidiary in the fall of 2015 as an open, vendor-neutral cloud platform. The advantage of using an open platform is that it covers the entire value chain while combining the individual strengths of our partners. The machines take orders via this platform, contact suppliers automatically for replacement stock, and announce mainte-

**TRUMPF** Based in Ditzingen near Stuttgart, the company is one of the world's largest makers of machine tools and a pioneer in the field of laser processing.

nance requirements. We want to be one of the first to offer this type of solution, because success in digitization is determined not only by factors such as confidential use of customer data but also by speed.

The dynamics and effects of digitization can be very different for different products and production systems. The rise of integrated production systems has made processes at many companies more efficient. The next trend we should be preparing for—a trend that has been a standard part of the car industry for decades now—is the individualization of products. Modern communication technologies combined with close use of robots can help optimize production processes, for example regarding real-time control. The ability to know exactly where a certain product is in the production process is the only way to effectively offer a wide range of variety and individualizing products to meet customer wishes.



running low. The washing machine sends a text message to your smartphone so that the cartridge can be conveniently refilled. Assistance systems for the kitchen are another major topic.

These examples provide an idea of the future of integrated home appliances. We will be thinking in terms of entire value chains, and looking at laundry and cooking processes as a whole in order to derive additional benefits for our customers. That requires developers and marketing strategists to think outside the box and devote greater attention than ever to potential customer needs.

Miele already offers more than 400 models that can be networked for smart home applications. In 2016 we are bringing a washing machine onto the market that knows when the liquid detergent in its storage cartridge is

## “We need to think outside the box and in terms of entire value chains”



**DR. EDUARD SAILER**  
EXECUTIVE DIRECTOR OF TECHNOLOGY,  
MIELE & CIE. KG

**Miele** A manufacturer of high-end household appliances for private and commercial use, Miele employs more than 17,700 people worldwide, including 10,000 in Germany. Headquartered in Gütersloh, the company posted sales of 3.49 billion euros in the 2014-2015 business year.

**TUI** The TUI Group is the world's number one tourism business. Headquartered in Hanover, it has 76,000 employees in 130 countries and posted sales of 20.1 billion euros in the 2014-2015 business year.

## “Virtual communications don't work over the long term”



**DR. ELKE ELLER**  
HR EXECUTIVE DIRECTOR OF TUI AG AND PRESIDENT  
OF THE GERMAN FEDERAL ASSOCIATION OF  
HUMAN RESOURCES MANAGERS (BPM)

Digitization is profoundly changing our companies and in turn, human resource management as well. As personnel managers, we need to explore the possibilities and tools now available in areas such as recruiting and team building. Today's job applicants and employees expect HR departments to use these technical resources in order to provide the best possible services. Digitization can also be enormously helpful in the field of service excellence. It makes us more efficient and allows us to concentrate more on strategic matters.

Moverover, the content of our work is changing and we have to make sure that high quality remains the standard and the guiding principle in the digital working world as well. The rate at which job descriptions and qualification needs are changing will probably continue to accelerate. At the same time, we are seeing a trend toward greater self- and co-determination on the job, influenced in large part by employees' higher levels of education and training.

Not least of all, digital communication makes it easier to combine a family and a job. However, we need to ensure the continuation of core attendance times as well as a setting for teams to meet in person. Over the long term, purely virtual communications do not work.



## “Fully automated farm machinery will be commonplace”

**DR. HERIBERT REITER**  
VICE PRESIDENT ENGINEERING TRACTORS  
GLOBAL, AGCO CORPORATION

main affordable. Although many people still have a traditional image of farming, electronic and high-tech equipment have been a part of agriculture since the early 1990s. Since then, convenience and automation have greatly assisted efforts to further increase productivity, efficiency, and quality.

Just as “Industry 4.0” was introduced to industrial production, we will also be seeing “Farming 4.0,” which refers to complete connectivity among all the elements in the farming process. This development has already led to a very

high level of automation, which will continue to rise. Fully automated machinery will be commonplace in the future.

 **AGCO**  
Your Agriculture Company **AGCO is one of the world's largest manufacturers of agricultural equipment. Based in Duluth, Georgia, it employs around 20,000 people and posted sales of 7.5 billion dollars in the 2015 business year.**



The Fendt, Massey Ferguson, and Valtra brands are all part of the AGCO corporation.

## “It’s about quality of life”

**THORSTEN KLAPPROTH**  
CHAIRMAN OF THE  
EXECUTIVE BOARD,  
HANSGROHE SE



**hansgrohe** With 34 companies and 22 sales offices throughout the world, Hansgrohe SE is one of the few global players in the sanitation industry. It is based in the southern German town of Schiltach in the Black Forest.

Connectivity is playing an ever greater role in our living space. Hotels have already made great strides in this area, because they can profit from the enormous savings possible on this scale. But private individuals can also set up “smart homes,” and we already offer some of the products to help them do so.

The RainBrain electronic shower control system, for example, can regulate not only five different spray modes but also the lighting, as well as an integrated MP3 player with a Bluetooth connection.

Smart homes, including the development of faucets into intelligent systems, not only mean greater convenience. They also help save resources—to a very considerable degree. One concrete example: conventional handheld shower heads use around 15 liters of water

a minute, while our EcoSmart shower head usually needs just 9 liters. That means cost savings of 40 percent—in addition to the water itself, which is becoming increasingly scarce in many parts of the world. Ultimately, what we are talking about is a general improvement in the quality of life.

## “Let’s rethink mobility”



**DR. ROLF BULANDER**  
CHAIRMAN OF BOSCH MOBILITY SOLUTIONS,  
ROBERT BOSCH GMBH

 **BOSCH** Mobility Solutions is Invented for life **the largest business sector in the Bosch Group, one of the world's leading suppliers for the automotive industry. In 2015, this unit accounted for 60 percent of overall sales with 41.7 billion euros.**

We have to rethink our approach to mobility—especially in large cities, where we will need to have integrated networks of cars, bicycles, rail vehicles, and buses.

Regardless of whether car use continues to grow or becomes more tightly regulated, all scenarios will include electrifying powertrains, automating vehicles, and connecting them to networks. And that is also changing what we do. Our focus is expanding to cover more than just what is under the hood. Bosch is already providing comprehensive mobility systems—namely, solutions that connect cars with other means of transportation and the infrastructure. In keeping with our slogan “Invented for life,” we want to make not only cars and engines more efficient, but also transportation as a whole.

Electromobility is coming, despite any reservations we may have. We aim to cut battery costs in half by the year 2020, which will enable the market to grow at a significant rate in the following decades. That is also an enormous technological challenge. By 2025, 15 percent of all

new cars will have an electric powertrain. But this also means that combustion engines will remain the basis for efficient mobility on into the 2020s. What we need to do is improve them even further and integrate them with electric motors.

Automated driving is developing step by step via the driver assistance systems market, which is already expanding rapidly. Right now Bosch has around 2,000 developers—a good 700 more than two years ago—working on remote-control parking, traffic jam assist, and evasive steering support systems. By 2020 we want to have our highway pilot system in operation, which will enable automated driving on freeways.

The key to efficiency in cities will be connectivity. For example, sensor-based parking management systems will show drivers vacant spots on parking lot maps in real time. That will considerably reduce the amount of time we spend driving around looking for somewhere to park. But this will require an infrastructure that needs to be set up with telecommunications and technology companies together with municipal authorities. We are working on a pilot project for this in the Stuttgart metropolitan area.



## “Our machines build components out of metal powder”

**FRANK HERZOG**  
FOUNDER AND CEO OF  
CONCEPT LASER GMBH

Our machines create complex and highly stable components out of metal powder and digital data sets. Our 3D printing systems address one of the main areas of Industry 4.0., underscoring our involvement in the digitization process.

Additive manufacturing offers numerous advantages over conventional production processes. It can make lighter components, give designers more freedom, optimize topology and geometry, integrate additional functions, and reduce the amount of raw materials needed. As a result, components that were previously made by machining or subtractive processes are now being redesigned to make full use of the potential of additive manufacturing.

The interface between people and machines is currently being redefined. In the future, industrial robots will no longer require safety barriers for many of their applications, and their controls will become so simple that they can work in many other areas, including non-industrial settings. For instance, they could help nurses at hospitals by performing simple tasks such as clearing away meal trays, which would free hospital staff to concentrate more on the patients and the care itself.

In order to work closely with people, the next generation of robots will be equipped with additional sensor systems. Even today, fitted with sensors and camera-based vision systems, robots can see, touch, and move around. Robots will assist people with their precision and their ability to perform physically demanding tasks. They will make it possible to develop new and more “user-friendly” production systems.

An open question right now is who will shape these work stations on the shop floors of the future—companies from classic industrial sectors or the major IT corporations? The key task here is to connect the hardware with the overarching IT platforms that will be controlling industrial production. Closed systems will probably no longer be viable over the long term. What we would like to see in their place are open “shop floor operation systems” with defined interfaces that can be developed and operated by industrial providers. To achieve this aim we will have to redefine our partnerships and enter into new alliances.

We develop solutions that make 3D printing even better, more efficient, and more economical. Automation, connectivity, and digitization—these three key elements of Industry 4.0 represent the major challenges here. We are also pursuing new approaches such as composite and hybrid construction. For example, a base body can be made by conventional means and then given additive parts. This enables the advantages of the two production processes to be fused together, in a very literal sense of the word.

**CONCEPTLASER** additive manufacturing solutions **Founded in 2000**  
**by Frank Herzog,**  
**Concept Laser GmbH is one of the world's leading providers of machine and systems technology for 3D printing of metal components.**

## “New alliances are needed”

**DR. TILL REUTER**  
CEO OF KUKA  
AKTIENGESELLSCHAFT



**KUKA** **Kuka AG, with around 12,300 employees, posted sales of approximately 2.9 billion euros in 2015. In addition to the production and development site at its Augsburg headquarters in Bavaria, Kuka has an international presence with around 100 companies.**