

**MAKING THE
RIGHT DECISIONS**
AT THE RIGHT TIME

Annual Report 2016

Key figures

in € millions	2015	2016	Change in %
Orders received			
Robotics	891.2	1,088.8	22.2
Systems	1,428.1	1,644.6	15.2
Swisslog	551.8	742.6	34.6
Group	2,838.9	3,422.3	20.6
Sales revenues			
Robotics	909.6	993.5	9.2
Systems	1,471.7	1,395.5	-5.2
Swisslog	620.8	593.5	-4.4
Group	2,965.9	2,948.9	-0.6
Oder backlog (Dec. 31)	1,639.0	2,048.9	25.0
EBIT			
Robotics	100.2	100.7	0.5
Systems	114.7	91.3	-20.4
Swisslog	-45.9	4.8	110.5
Group	135.6	127.2	-6.2
EBIT in % of sales			
Robotics	11.0	10.1	-
Systems	7.8	6.5	-
Swisslog	-7.4	0.8	-
Group	4.6	4.3	-
Earnings after taxes	86.3	86.2	-
Financial situation			
Free cash flow	95.7	-106.8	-111.6
Capital employed (annual average)	676.8	783.0	15.7
ROCE (EBIT in % of capital employed)	20.0	16.2	-
Capital expenditure	107.0	99.6	-6.9
Employees (Dec. 31)	12,300	13,188	7.2
Net worth			
Balance sheet total	2,381.7	2,543.9	6.8
Equity	732.5	840.2	14.7
in % of balance sheet total	30.8	33.0	-
Share			
Weighted average number of shares outstanding (in millions of shares)	36.1	39.6	9.7
Earnings per share (in €)	2.39	2.19	-8.4
Dividend per share (in €)	0.50	0.50 ¹	-
Market capitalization (Dec. 31)	3,197.5	3,506	16.8

¹ Subject to approval by shareholders at the Annual General Meeting on May 31, 2017

MAKING THE RIGHT DECISIONS AT THE RIGHT TIME



KUKA stands for Industrie 4.0 made in Germany and sets trends in robot-based automation. The increasing digitization of production and the cooperative networking of human workers and machines are set to change the world of work fundamentally.



KUKA moves in a dynamic, innovation-driven market environment, which is continuously being redefined. A key factor of success is making the right decisions at the right time in order to set the right strategic course. An important aspect of KUKA's success is the ability to identify and benefit from trends and opportunities early on, as well as having the courage to embrace change.

KUKA AT A GLANCE



KUKA is a global automation company with sales revenues of around 3 billion euro and a workforce of approximately 13,200 worldwide. As one of the world's leading suppliers of intelligent automation solutions, the company offers its customers everything they need from a single source: from the core component – the robot – to cells and fully automated systems. With its products and key technologies, KUKA is a driving force behind Industrie 4.0 and the associated digitization of production processes. The aim is to support customers with integrated solutions in order to optimize their value creation.

Sales revenue

2.9 bil. €

Orders received

3.4 bil. €

Employees: 13,188

+7.2%



Key figures and locations 2016



MAKING THE RIGHT DECISIONS AT THE RIGHT TIME

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„KUKA has strong roots in Germany. And we will continue to grow from this base. We stand for Industrie 4.0 made in Germany. And that is what makes us successful worldwide.“

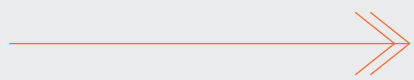
Dr. Till Reuter



Cover: The sensitive LBR iiwa supports humans in the smart factory.



MAKING THE RIGHT DECISIONS



AT THE RIGHT TIME

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The sensitive LBR iiwa fetches components from a warehouse and learns from its experience.




Editorial



Dr. Till Reuter, Chief Executive Officer

Dear Shareholders,

With sales revenues of around 3 billion euro and an EBIT margin of 5.6 percent, KUKA can look back on a successful and also one of the most eventful years in the company's history.

Of course, you are well aware of this since you have experienced the media frenzy surrounding the acquisition of KUKA by Midea first-hand. You were at the center of events and had to decide whether to tender your shares or not. Now, Midea holds 94.55 percent of KUKA shares and has appointed four representatives to the Supervisory Board. Never before was KUKA exposed to so much publicity.

New technologies for Industrie 4.0 and digitization

At an early stage in 2016, our Industrie 4.0 endeavors got a big boost: KUKA robots performed during the opening ceremony of Hanover Fair and an LBR iiwa robot personally shook Barack Obama's and Angela Merkel's hand.

At our booth, we were able to enthuse our customers with solutions and concepts for the factory of tomorrow. In turn, the customers offered up ideas for further developments in this regard. We have the advantage of being well-versed in the various processes used in a wide range of different industries. This know-how benefits our customers in improving their own networked processes.

Individualized products at low production costs. This is a challenge that nearly every industry must contend with. But this can only be achieved with a smart, networked factory. Smart factories require an enormous data capacity to make system conditions and production scenarios predictable. Using big data efficiently will therefore play a key role. It becomes possible for complex production systems to be optimized when large amounts of data in a networked factory can be mapped and processed in real time. New production opportunities emerge when all of these conditions are met and industrial production is connected to the cloud and big data. >



With KUKA Connect, KUKA has developed a new cloud-based software platform that allows our customers to easily view the data of their KUKA robots from anywhere in the world and thus to increase the performance and effectiveness of their production operations. KUKA is implementing open global standards and offers customers a high-performance real-time computing platform in combination with big data analytics.

Robotics is also being shaped by this development. Robots are becoming more sensitive, mobile and can move autonomously. They are the link between the real world and the digital one.

We are boosting our innovative strength

KUKA is increasing its own innovative capacity by supplementing its know-how through start-ups and strategic partnerships. One of these start-ups is connyun. This company is developing a cloud-based platform that will enable KUKA to offer its customers an entire portfolio of services. We are

creating a new ecosystem around our customers. After all, our customers demand more than just information about the KUKA processes. They want to have an overview of the entire process, which is why connyun is also open to third parties. KUKA is ready to assist customers in implementing their smart factory.

Digitization has been a matter of course for KUKA employees for some time. They work in global, interdisciplinary teams and across various time zones. They are right at home in the KUKA Digital Business Cloud and communicate via an in-house business chat platform around the globe. This becomes evident to our customers when they venture into the KUKA product world via the digital marketplace.

Global strength with German DNA

As a company with German DNA that is firmly rooted at its headquarters in Augsburg, KUKA is a strong player on the European market. To achieve growth worldwide, it is critical to expand to locations all over the globe. Because the

„We have the advantage of being well-versed in the various processes used in a wide range of different industries.“

Dr. Till Reuter

Left: Dr. Till Reuter (born 1968) has been CEO of KUKA Aktiengesellschaft since 2009. Prior to that he worked as a lawyer and investment banker in Europe and the United States. In May 2008, he founded the holding company Rinvest AG, of which he is Supervisory Board Chairman.

Right: Peter Mohnen (born 1968) has been CFO of KUKA Aktiengesellschaft since 2012. Previously he was CFO at E.ON in Hungary, after having worked for many years in leading positions in accounting at E.ON in Essen.

robot density abroad is many times lower than in the highly automated European market. China is already the largest growth market worldwide.

In July, KUKA presented a tailor-made robot for the 3C market (computers, communications and consumer electronics) to an Asian audience at the China International Robot Show (CIROS) in Shanghai. In the Asian electronics industry, where production changeovers are frequent, it is decisive that the robots can be used flexibly. This is what prompted KUKA to develop the KR 3 AGILUS.

Midea, the new majority shareholder, supports this strategic approach and is smoothing the way. Particularly in terms of service and consumer robotics, Midea supplements our know-how and will enable us to access this new market.

Taking responsibility

New, innovative business models will also impact the value chain and how ownership is handled, as well as the role of robots. They will become increasingly important in people's daily lives. This raises questions in society: How do such developments change the world of work? Who is using what data? And how safe do technologies have to be? As a global automation company, KUKA has a responsibility to join the discussion and offer solutions. We are aware of this responsibility. Every day our employees give their very best to ensure a high level of safety and responsible use of data and process know-how.

While digitization may be changing many things, one thing remains the same: KUKA's success is based on the creativity and dedication of its employees and I would like to take this opportunity to express my exceptional gratitude to them.

Sincerely,



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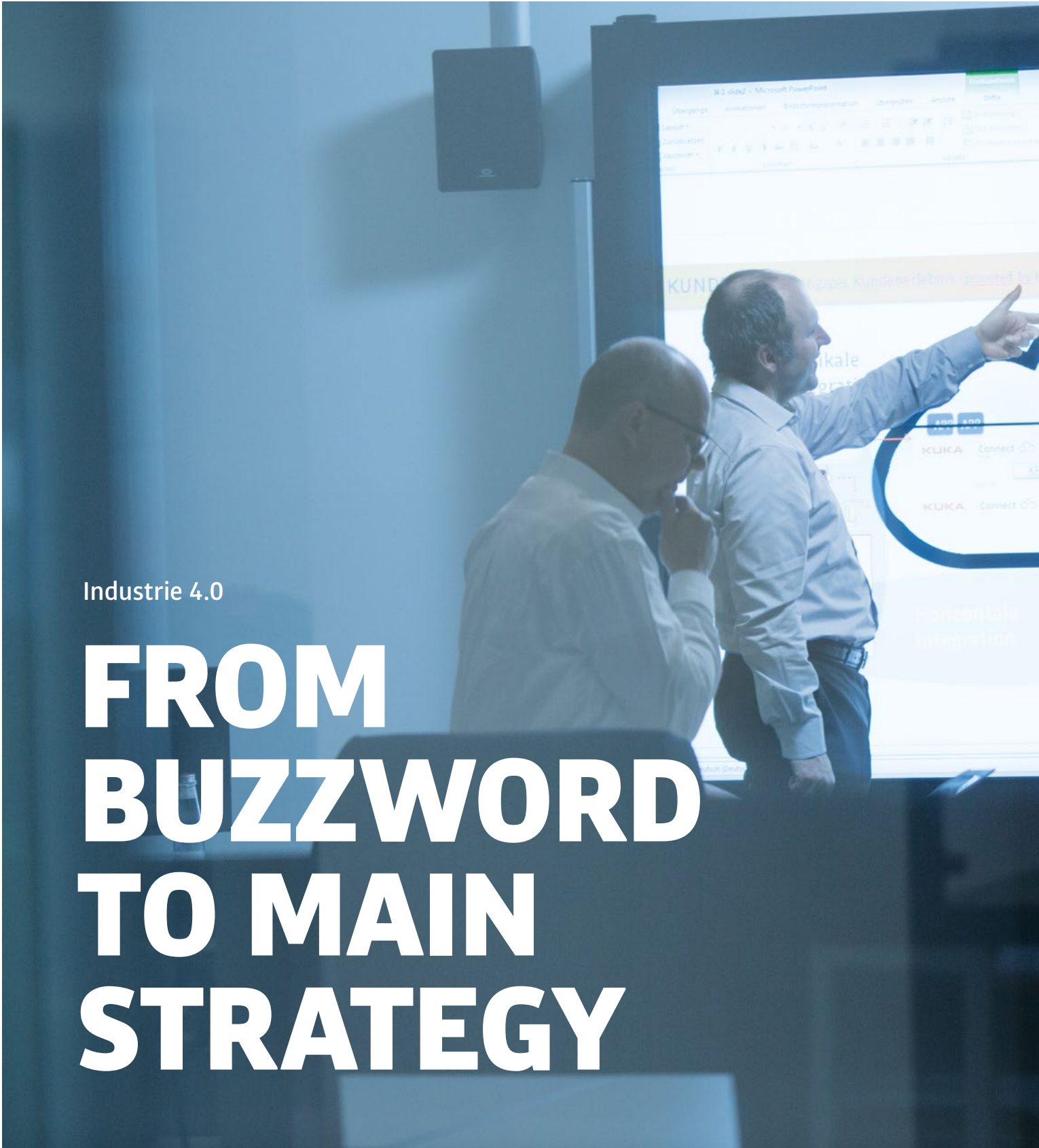
KUKA celebrates the inauguration of the Development and Technology Center in Augsburg

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Industrie 4.0

FROM BUZZWORD TO MAIN STRATEGY



At a time when the media were still debating whether Industrie 4.0 was a trend, a development or a revolution, KUKA had long recognized that digitization would change the world of production for good, and the company adapted its course accordingly.

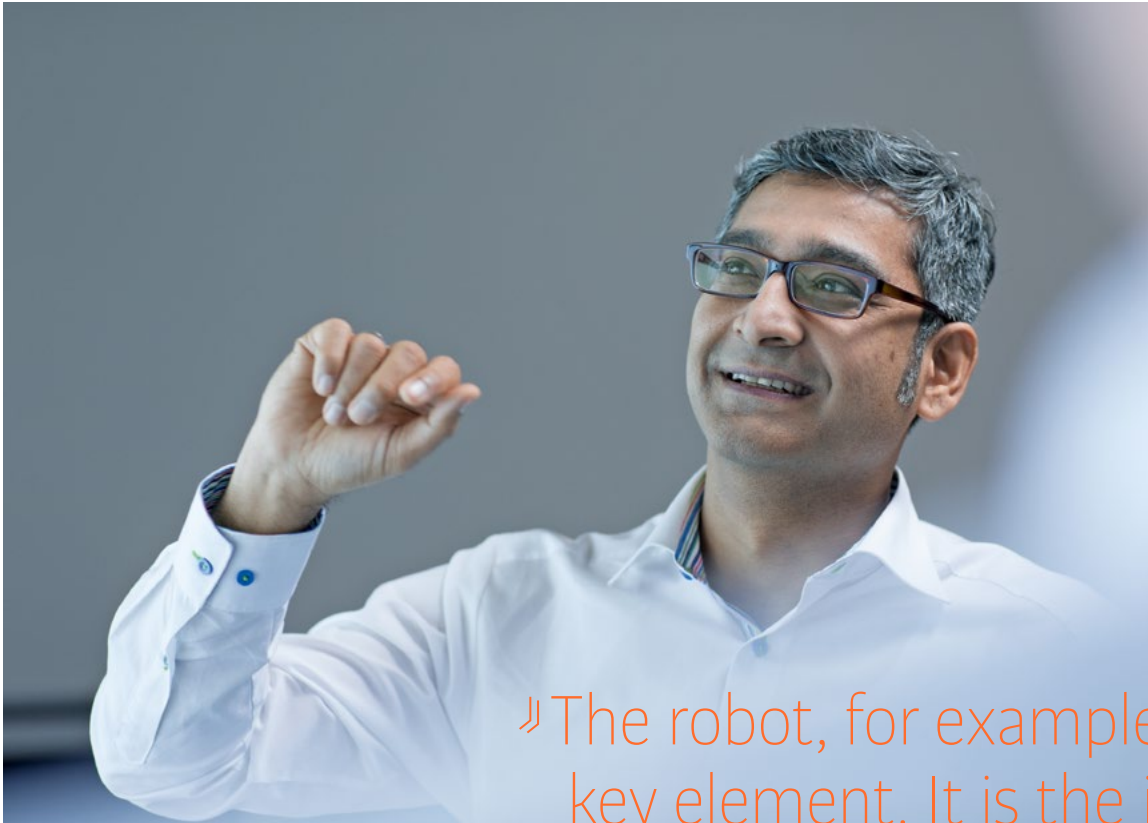


What people are familiar with from their private lives and their consumer behavior will sooner or later catch on in manufacturing as well. Customer needs will influence production and even control it. Today, people are accustomed to buying products online and having them delivered overnight. And at the same time they want the goods they order to be as individualized as possible. The color of the hip brand-name sneakers must be selectable or match the tracksuit. Individualism is “in” – made possible by the Internet. A lifestyle that places high demands on production.

Digitization and customer behavior will change entire manufacturing processes: in the future, production will be defined by cloud-based services. Manufacturing will be a service that can be ordered at the click of a button. The customer will buy a service rather than a system. We are familiar with similar concepts from car-sharing services or music streaming, for instance. This enables companies to offer the very flexibility that their customers demand. >

Focused on KUKA Cloud – Holger Ewald, Dr. Christian Schlögel and Rohitashwa Pant (left to right) discuss the optimal cloud solution for customers.

Rohitashwa Pant manages the team Industrie 4.0 Accelerator.



»The robot, for example, is a key element. It is the interface between IT and the manufacturing world.«

Rohitashwa Pant

“KUKA is at the core of this development,” explains Rohitashwa Pant, who is heading the Industrie 4.0 Accelerator team at KUKA. “The robot, for example, is a key element. It is the interface between IT and the manufacturing world. It collects data that can be used to improve processes.” Pant joined KUKA about a year ago to take on the challenge of fusing and promoting all Industrie 4.0 projects within the company.

“Previously, I was working at a consulting firm that dealt with Industrie 4.0. Such an opportunity to translate the conceptual framework of Industrie 4.0 into real projects and work at the forefront of innovation comes around once in a lifetime,” explains Pant. He started his career at Siemens in Erlangen as a commissioning technician for automation systems. After working in the United States and India, Pant

focused increasingly on digitization and most recently worked at Accenture Digital in Munich. “Bavaria is home to me, but so is India. Originally I’m from Mumbai, but my children were born in Munich,” says the young father about his son and twin daughters. “I’m happy here.”

Pant is now working on the conceptual implementation of Industrie 4.0 at automation specialist KUKA in Augsburg. “At KUKA, we are attempting to demystify this abstract concept on a daily basis.” Among other things, the team is examining how to better organize complex and opaque processes through networking. The team is also working on the issue of analyzing the production environment and

adapting processes accordingly by using digitization. “Such an approach is feasible today, because now we have the appropriate technologies and sensors to attune dynamic parameters, such as the temperature or power consumption, to the production process centrally in the cloud,” states Pant. “Industrie 4.0 thus helps us build intelligent solutions, so that we can flexibly adapt to different circumstances.”

But Industrie 4.0 is much more than just a project. The entire company is undergoing a transformation on account of Industrie 4.0. “In the digital world, everything is connected. Global IT is therefore geared fully towards this transformation,” says Chief Information Officer (CIO) Holger Ewald in explanation of the latest strategic course adjustments at KUKA. Within the large-scale Power ON program, important groundwork is being laid for Industrie 4.0, for example in the form of globally harmonized processes and product data. “Building upon this, we are digitally connecting goods, information and financial flows with the KUKA Digital Business Cloud. This means that, in the future, we will have a common digital language within

KUKA and towards customers.” For customers, this change will be noticeable as soon as they access the digital KUKA marketplace. The website at <https://shop.kuka.com> is not only about purchasing new KUKA products, it also offers user manuals, training videos and any other information the customer may need. >

Holger Ewald,
Chief Information Officer (CIO)



„In the digital world, everything is connected. Global IT is therefore geared fully towards this transformation.“

Holger Ewald



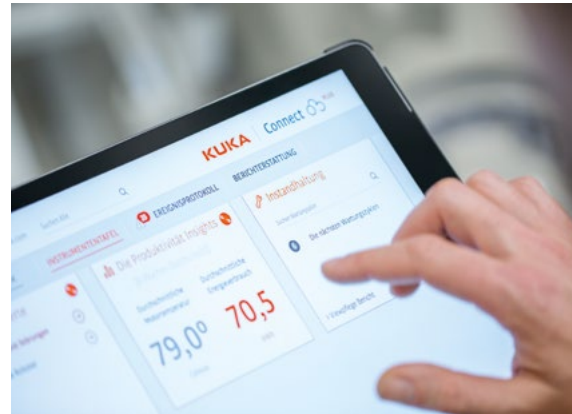
“As the KUKA product range continues to grow, a digital trading platform is vital in order to provide customers with an intuitive experience and a comprehensive overview of new products,” emphasizes David Fuller, Head of Research and Development at KUKA Robotics. With a focus on digital business transformation, the KUKA marketplace offers customers the newest zero touch IoT solution from KUKA for intelligent production: KUKA Connect. Fuller

is particularly proud of this product. It allows customers to access robot data in their production operations – in a convenient manner on a computer and no matter where the robot is located. The robot informs the customer when it is due for maintenance or provides information about its energy consumption.

KUKA Connect is a cloud-based product that enables customers to make their production more efficient, to boost output and above all to be more innovative. KUKA is implementing open global standards and makes use of large-scale data analytics and a fog computing platform in order to offer customers maximum transparency with regard to their robots. >

»As the KUKA product range continues to grow, a digital trading platform is vital.«

David Fuller



KUKA Connect allows customers to access robot data in their production operations.

David Fuller,
CTO KUKA Roboter GmbH



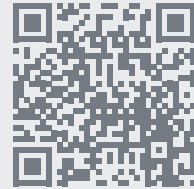
Intelligent production: the robot communicates with the intelligent coffee machine and exchanges data with the cloud. The system data can be accessed from anywhere using a mobile device.



Hanover Fair
2016

COFFEE 4.0 – THE ROBOT BARISTA

Order your customized cup of coffee by smartphone and have it served by a robot soon after: this is now possible thanks to the Internet of Things. Two KR AGILUS robots operate one coffee machine each, receiving the required data from the cloud. In line with the Industrie 4.0 philosophy, the process is not controlled by a central entity. The cups, which are provided with a QR code, move autonomously through the decentralized production system. Status messages are sent to the smartphone during the production process. <



SMART FACTORY

Networking production components to create an intelligent system: mobile robots for transport, automated warehouse systems, robots for quality inspection, sensitive robots to collaborate with humans – all components of the Smart Factory are capable of communicating with each other and exchanging information about the respective order status. The Asset Management feature in the KUKA Cloud offers users a clear overview on their smartphone. <



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Hanover Fair
2016

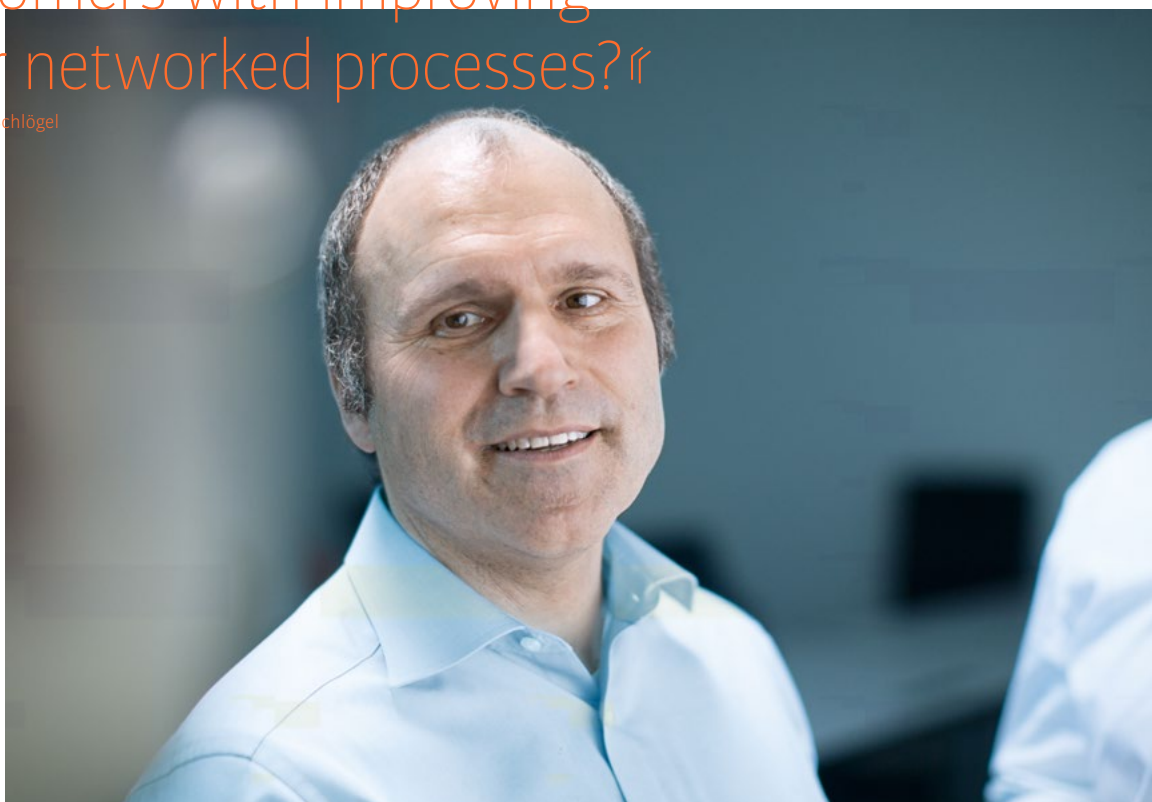


Trade fair visitors had individual protective covers made for their smartphone in the Smart Factory.

»If not us, then who will assist customers with improving their networked processes?«



Dr. Christian Schlögel



Dr. Christian Schlögel,
Chief Technology Officer
(CTO) of KUKA Group

“It is very advantageous to KUKA that we possess so much process know-how,” explains Christian Schlögel, Chief Technology Officer (CTO) at KUKA. “If not us, then who will assist customers with improving their networked processes?” Networking and collecting data is one thing, but making use of the data is an entirely different matter.

Schlögel is also CEO of connyun, a start-up company that is developing the cloud-based platform via which KUKA will offer its customers a whole ecosystem of services, and which also provides the underlying technical foundation for KUKA Connect.

“We anticipate that our customers will want more than just information about the KUKA processes. They will only be able to optimize their processes once they have an integrated understanding, from the robot to the gripper and through to the environment in which the robot is deployed.” This is why Schlögel wants to open the connyun platform to third parties as well. “After all, the motto is ecosystem rather than egosystem,” he explains, giving a smile. “Those who hoard all processes and data for themselves will not last very long in a competitive international marketplace.” Sharing is a key factor in the digital transformation. This

does not mean, though, that just anyone will have access to the data. “The customer will decide who and why someone is allowed to view the data.”

But the KUKA engineers are in agreement that a rethink will be required. It is crucial to be prepared for the digital transformation. And this transformation starts with the KUKA employees themselves. They have long become accustomed to interdisciplinary approaches. They work in global teams and have no problem coordinating between different time zones. For example, a development team in Austin provides the IoT know-how. The employees are supported in their interdisciplinary exchange of information by the KUKA Digital Business Cloud. In this social business network by the name of Chatter, employees share knowledge, discuss current issues and organize into project groups. Since June, Chatter has been an integral part of the workplace at KUKA worldwide – a digital collaboration across borders. <



Essay

THE FUTURE WILL BE WHAT WE MAKE OF IT

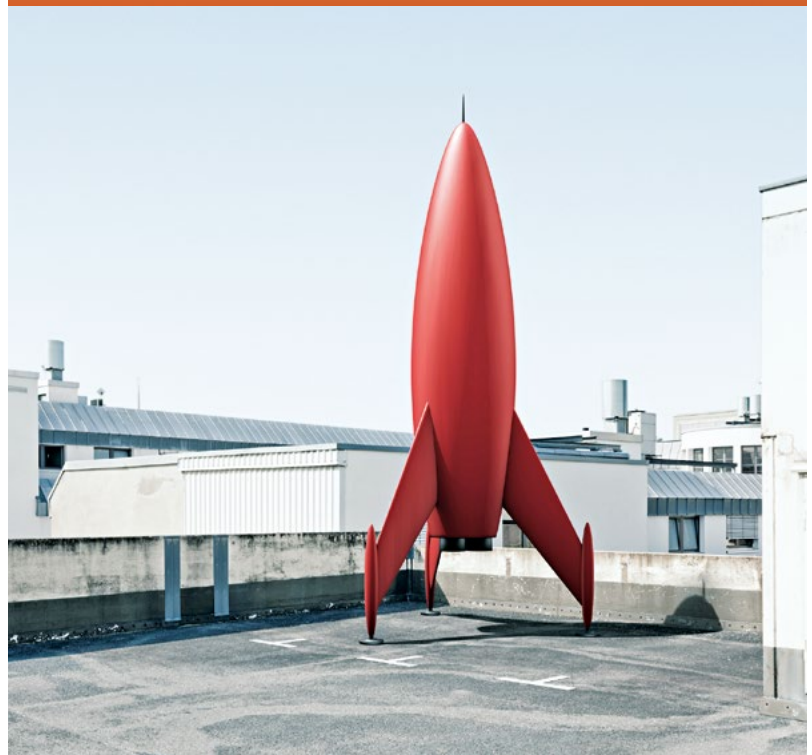
We make approximately 20,000 decisions every day, many of which are taken unconsciously within a split second. If they are decisions in companies, it is important to take a little more time – and to consider the major trends in society.



The economist Hariolf Grupp, who used to be a futurologist at Fraunhofer ISI and father of the forecasting method Delphi, once said: “If our predictions are correct, we have done something wrong.” Grupp visibly enjoyed irritating his listeners. Is it not the task of a futurologist to see exactly what is going to happen in his crystal ball? No, contradicted Grupp, it is about formulating scenarios and options for action. The essence of his perspective: the future is not a straight arrow with a defined direction, it is a space of possibilities including futures which need to be prevented, even though they seem very probable at the time.

The number of computers required worldwide, the triumph of fuel cell vehicles, or artificial intelligence which makes people redundant: the list of failed predictions is incredibly long. Astrologers, fortune tellers and the oracle of Delphi have known this for thousands of years and therefore consciously make their premonitions vague so that everything is somehow always right. Market research institutions, on the other hand, prefer mathematical methods and surveys – often with modest results. >

Is it not the task of a futurologist to see exactly what is going to happen in his crystal ball?





Megatrends such as demographic changes or customization must be taken into account in order to set companies on a successful long-term course.

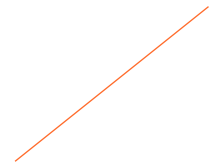
Why do we like to believe in predictions, even though we know that they almost never come true? The assumption is that the future scares us, we somehow want to make it more predictable and set it in stone. The little brother of forecasting is planning. It is based on the assumption that if we were able to predict the future, certain measures must necessarily take us there. However, detractors claim that planning is only replacing coincidence with error.

If you have read up to this point, you may ask yourself how there is any room for such an ostensibly pessimistic perspective in the annual report of a forward-looking company like KUKA? If a forecast doesn't work and planning is pointless – what happens next? The good news is: a good strategy and good planning are very important, but not in the sense of a checklist which needs to be worked through. An innovative company also develops options for action in future scenarios which are not very likely, but are all the more exciting. Or expressing it another way: those who cannot predict the future, should shape it. Those who show great courage can also focus on the strategy of creative destruction which American authors are especially enthused about. Every company needs to find the happy medium between “keeping it up” and “upsetting the applecart”.

But how? Here are a few thoughts on how companies can shape the future:



Digitization and the inexpensive availability of ever greater computing power make it possible: storing, sharing and interpreting millions of records and their subsequent evaluation.



The megatrends as guidelines

Global warming, demographic change, population growth, urbanization, digitization – there are developments which you can rely on. These megatrends must be taken into consideration along with other industry trends. Every (really every!) company will be faced with these topics sooner or later. Trends that are evident in robotics are digitization, demographic change and the resulting shortage of skilled labor. A trend with far-reaching consequences is individualization. People are increasingly living alone and the workplace and colleagues are replacing their families in establishing a sense of purpose in their lives. Work 4.0 must convey this sense. The robotics industry is working on a change of image in this context: it is moving away from the heavyweight behind fences that makes human work less onerous, but also partially redundant, to a sensitive partner that takes tedious tasks off factory workers' hands and gives them back their autonomy. The value of work is increasingly measured in terms of appreciation, including our own appreciation. If we think this through properly, it means that we also have to appreciate people when they are not working.

Nothing can be taken for granted

But what happens to people who can't keep up with the pace of technological development? A better education is what's needed, say all politicians in unison. Germany is well-equipped with its education system, especially with the dual education copied worldwide. However, there is still room for improvement, particularly when it comes to dealing with technology as a matter of course. This is where emerging countries have a great opportunity. The people in these countries do not carry a burden of concerns, they are inquisitive and hungry for technology. This encourages the opportunity to share economic success and promotes curiosity about products made in Germany – everybody benefits from it.

However, it is important to be cautious with growth forecasts. Five years ago, all economists had Russia, Brazil and China at the top of their list, but they have fallen short of many expectations. That is likely to change again, but it is not something you can rely on. Further economic growth through private consumption is also an uncertain hope. A third car, a television in the bathroom? It is something you can have, but it is not a necessity. Trends such as the sharing economy may gain momentum: using instead of owning. Operator models are becoming more and more important in mechanical engineering and robotics and the pace is picking up further with digitization (see above).

Customers are an inspiration – but not just that

German industry prides itself on being especially close to its customers and their applications. But when you ask customers what they expect from a new product, the answer is often the following: it should do the same, but be quicker and cheaper. That is incremental innovation and is not a bad thing. However, this is not enough for a high-tech company. This type of company innovates in fields which the customer does not yet give a moment's thought. Does a worker need a small robot arm that hands over parts? Maybe not. He has done without one so far. Yet, KUKA developed the lightweight robot iiwa anyway. It represents a bet on the future, but a bet with very good odds.

Staying power is called for

The lightweight robot iiwa again: robot researchers like Martin Hägele (see interview on page 22) already had predecessor models in their laboratories years ago. At the time, the unwieldy arms which, like small children, refused to do what their flesh-and-blood partners wanted, were still ridiculed. Nobody is laughing any more.

Finding the right partner

When is a partner the right one? When he or she doesn't say yes and amen to everything. Otherwise, you could also do it yourself. The step from the "not invented here" barrier to "open innovation" is painful for many traditional industrial companies, but necessary. Caution is required, however: it is important to protect know-how, especially in high-tech industries. Some people consider there to be a risk, especially through Industrie 4.0 and the Cloud. See what digitization expert Michael Suppa has to say (see interview on page 28).

Culture is everything

The most important message is a platitude, but many companies have a hard time with it – fortunately this does not include the family-oriented German mechanical engineering industry: a company is not an abstract thing, but is only as valuable as the amount of energy and know-how its own employees and partners invest in it. The key concept is corporate culture. It forms the basis for a culture of innovation, which in turn requires an error culture. This is reminiscent of Charles Darwin's theory of evolution. It is not about who is the fittest as some people wrongly assume, but rather who is the most adaptable. Adaptation is accomplished in evolution through change and selection, you could also say: trial and error. Companies cannot be as wasteful as nature. They cannot leave everything to chance. But they can keep moving, conquer new fields of technology and initiate partnerships. Only those who keep moving survive.

"The future used to be better too," joked Bavarian comedian Karl Valentin. That is illogical in that what used to be the future is of course now our present. And that isn't all that bad either. That gives us hope for tomorrow's future. It is up to us to be courageous in building it. <

» The key concept is corporate culture. It forms the basis for a culture of innovation.«

The Robot and Assistive Systems department of the Fraunhofer Institute for Manufacturing Engineering and Automation (IPA) develops new key components and technologies for future robot applications and complete robotic systems.





Trends in robotics

ROBOTICS 4.0: FEEL, LEARN, ASSIST

Interview with Martin Hägele,
head of the Robot and Assistive
Systems department and the area
of Intelligent Automation and
Cleanliness Technology at the
Fraunhofer IPA, Stuttgart

Martin Hägele has been working on robotics topics at the Fraunhofer IPA for more than 25 years.



Robots without fences, working together with humans and intuitive to operate – this vision has now become a reality, according to Martin Hägele. In this interview, the researcher from the Fraunhofer Institute reveals what other applications robotics will soon tap into. Together with Industrie 4.0, this will also enable new business models.



Mr. Hägele, you have been working on robotics at the Fraunhofer Institute for more than 25 years. Looking back, what were the most important trends?

Hägele: There are four trends in particular which have emerged over the last 20 years: PC technology has become part of robotics, also sensor technology, particularly image processing, and of course enormous strides have been made in terms of performance, precision and technical reliability. One of my personal highlights, which I have been actively involved in from the beginning: the advent of service robotics has resulted in some exciting applications for robots outside of production, too.

And what hopes and expectations have not come true?

Hägele: For this span of time, three examples spring to mind: direct drives, which were pushed at one point, were unable to get any traction, industrial robots are still made predominantly of metal and not plastic, and some fields of application have been much more reluctant to use robots than expected, for example, food production, construction and even industrial assembly.

Would you nevertheless venture a forecast for the coming years?

Hägele: Some trends are easy to spot: first and foremost the incorporation of robotics in Industrie 4.0 infrastructures, the use of robots in production with small batches, and the further elimination of safety fencing. One of the prerequisites for this is the use of more sophisticated sensors that are capable of detecting objects and surroundings, or determining forces to be applied. A current milestone in this regard is the lightweight robot iiwa, which is breaking new ground with its ability to assemble safely and sensitively. The next step involves learning systems which are able to improve their performance from experience, for example when detecting objects or for optimized process control.

Let's stay with Industrie 4.0: why is this so closely linked to robotics?

Hägele: Robots are prime examples of cyber-physical systems: equipped with powerful controllers, sensors and user interfaces and capable of networking. Cost-effectiveness and flexibility depend on their ability to semi- or fully-automatically generate and adapt their programs. This requires the availability of current product and process data to the robot. Furthermore, the volume of data captured during ongoing processes forms the basis for new services. Data analytics yields new findings, which in turn can be translated into new services and business models.

Which new business models is robotics able to tap into?

Hägele: I can see two important directions. Firstly, the industry has been discussing new financing and operator models for robots for some time. KUKA was a leader in this regard with its plant in Toledo, for example, where the bodies for the Jeep Wrangler from Fiat Chrysler are manufactured under KUKA's own responsibility. Or versatile production plants, which lease additional robots temporarily during capacity bottlenecks or sell robot time to other manufacturers during periods of overcapacity. Another direction comprises services or skills to improve the utilization of robots. Predictive maintenance is one of the most frequently cited examples of this. But robot manufacturers could also offer software and platform services with interesting options comparable to smartphones, whose functions can be expanded with apps and services. >



„According to estimates, there are already about 1,000 robots worldwide working collaboratively, meaning they share tasks with humans.“

Martin Hägele

You mentioned human-robot collaboration as another trend. We have been hearing a lot about this. To what extent is it actually implemented?

Hägele: According to estimates, there are already about 1,000 robots worldwide working collaboratively, meaning they share tasks with humans. Collaborative robots present workpieces, perform assembly or machining tasks together with the human operator, or they serve as strength boosters: the robot carries the load, while the person guides it.

Those numbers don't sound very high yet...

Hägele: They will be steadily increasing, especially in the field of what is known as human-robot coexistence. The vision is a world without fences around robots. At first, though, this makes the system more challenging in the planning and deployment process. This is why we are working on simplifying the planning processes by supporting the planning of robot applications with IT tools and even automating it in some cases. Another big topic is the intuitive setup or programming of robot systems: this is achieved using dialog systems, for example, which integrate graphic programming, tactile guidance and, in the future, speech

recognition. It allows the robot to learn the intentions of the human operator over time, making the collaboration more intuitive for the worker.

So humans are not becoming dispensable, as many are fearing?

Hägele: On the contrary. Robots need humans. And humans need robots, because robots can take on ergonomically stressful tasks and activities that are mindlessly repetitive. But when it comes to the combination of experience, dexterity and assessing situations, robots are nowhere close to the abilities of humans. Apart from that, the level of acceptance of collaborative robots is very high among workers, as long as they are involved in the planning phase and are given adequate training.

What companies will play a leading role in robotics in the future?

Hägele: Innovative market leaders such as KUKA will most certainly be at the head of the field. In addition to that, a very dynamic start-up culture has emerged. In service robotics alone, there are more than 600 companies worldwide that are developing interesting products and solutions for a vast variety of commercial or private applications. An estimated 200 or more of those companies are considered start-ups, meaning they are no more than five years old. These companies are heavily driven by technology and are conquering new markets such as in the healthcare industry or agriculture. New market participants in robotics are emerging, such as Internet providers or online retailers who buy robots and combine them with new business models, e.g. in logistics or customer service.

Does that mean that robots are also tapping into applications outside of factories?

Hägele: Service robotics is a big market with double-digit annual growth. In the commercial sector, the current global turnover is 4.6 billion dollars. But the market is growing rapidly in the private sector, too. We already have lawnmowers, vacuum cleaners and window cleaners. Next in line are multimedia butlers for the home.

And when will robots be capable of loading the dishwasher or picking up items off the floor?

Hägele: Many of today's robots only fulfill a specific purpose, and they have no arms to perform any such useful handling tasks. But this will change. Interacting with robot assistants will become a matter of course. <



Martin Hägele studied Mechanical Engineering and Engineering Science in Stuttgart and in Washington DC. He has been at the Fraunhofer Institute for Manufacturing Engineering and Automation (IPA) in Stuttgart since 1989, has headed the Robot and Assistive Systems department since 1993, and the area of Intelligent Automation and Cleanliness Technology since 2016. Martin Hägele has been recognized with numerous awards, including the JosephEngelberger Award in 2007, the robotics industry's highest international honor.



The test facility of the Robotics department



Trends in digitization

SMART NET- WORKING

Interview with Dr. Michael Suppa,
CEO of the start-up
Roboception GmbH, Munich

Digitization, cloud, big data: these are issues very much on people's minds in the automation industry, too. Michael Suppa, CEO of Roboception GmbH, has a word of caution.

E **Everybody is talking about Industrie 4.0. Is the automation industry adequately prepared for this?**

Suppa: Automation and especially robotics is traditionally an engineering matter in Germany, since much pertains to kinematics and mechatronics. Industrie 4.0, on the other hand, largely involves interfacing to other fields. Manufacturers must evolve from mere product suppliers to complete system suppliers, as KUKA for example has been doing for some time.

The automotive industry anticipates that digital services for operating a car will one day account for a larger share of value creation than the actual construction of the vehicle. Will the same be true for robotics?

Suppa: That is my firm conviction. We can already see today that the actual robots are getting cheaper. At the same time, customers expect their robots to be far more useful and flexible than they have been, i.e. they want them to be "smarter". Services, updates, new capabilities via software: this is where the profit margin of the future lies. That is why we at Roboception are working to tap into these markets. >

„While in the past people were under the illusion that robots would become intelligent in the sense of human intelligence, today it is rather about making robots more flexible as tools, for example in collaboration with humans.“

Dr. Michael Suppa



What role will big data and artificial intelligence play for robotics in the future?

Suppa: We must make some distinctions here. If we are talking about only the robot, per se, then I don't think big data is the right term. After all, the data volume in robotics is generally not very large. Big data comes into play when several machines and a really large amount of process data are networked.

I don't think the term "artificial intelligence" is appropriate either. I would rather refer to this as machine learning, although the focus here has shifted over the last 20 years. While in the past people were under the illusion that robots would become intelligent in the sense of human intelligence, today it is rather about making robots more flexible as tools, for example in collaboration with humans. Roboception's

solutions allow robots to perceive their environment so that they are capable of accomplishing these tasks. With this in mind, it is not about replacing people in factories, but rather about supporting them.

How will that impact value creation processes and what new business models will evolve as a result?

Suppa: Today, robot manufacturers sell their products to integrators or they integrate them into systems themselves, such as those from KUKA Systems. More flexible robots would facilitate the integrator's task, while the manufacturer of the robot could demand a higher price. It is also conceivable that entirely new business models will be offered to end customers.

If digitization and the cloud are becoming increasingly important, wouldn't this mean that IT companies will enter the fray of mechanical engineering and robotics?

Suppa: These companies are already doing that today. While this is practical for the user, the consequences must be considered. After all, these corporations are basically huge learning factories that exploit these data. This is how an online mail-order business knows that you need coffee right after you ordered a coffee machine, and it makes you an appropriate offer. By utilizing their knowledge, these companies could make robots more adaptable and capable of learning, from which users would benefit. However, what they are lacking is the process know-how of mechanical engineering firms, who know exactly what a robot needs to



Dr. Michael Suppa in conversation with Elena Gambaro, a software developer advancing innovative techniques for 3D object recognition.



Dr. Michael Suppa is CEO of Roboception GmbH and is responsible for strategic development. Roboception develops software products offering real-time perception and manipulation solutions for robot systems. Previously, the electrical engineer had worked at the German Aerospace Center, researching the visual perception of robots.

do in order to move a sheet metal panel from A to B. They are familiar with their customers' problems and know how to solve them reliably. It is crucial to protect this exclusive knowledge. We at Roboception attach a great deal of importance to keeping our customers' data safe.

And how is this achieved?

Suppa: Machine and system builders must take a close look at what knowledge is contained in their data and consider carefully which data they choose to share. They must develop an understanding of what can be done with their data. To do so, the companies must build up their data competences without neglecting the mechatronic aspect.

How important is the issue of cyber security?

Suppa: It is extremely important and challenging. Industrie 4.0 is founded precisely upon the many networked components and interfaces. Of course, this openness allows others with less honorable intentions access, too. This must be kept in mind, and hardware and software solutions must be developed and deployed which restrict access to sensitive data to appropriately authorized users and systems.

If digital services are becoming more important in mechanical engineering and robotics, are universities and industrial training establishments still conveying the proper skills?

Suppa: Today, it is no longer feasible for an electrical engineer to be completely uninformed about software. Robotics – along with many other industries – is at the crossroads of mechanical engineering, electrical engineering and information technology. That is how it should be taught at universities, but unfortunately this is not always the case. Industrie 4.0 is more comprehensive, you could even say more holistic, than the previous industrial revolutions. The steam engine had a selective impact, whereas digitization encompasses all areas of life. To keep pace with this, it is important to encourage and qualify people, because everyone is affected by digitization in a networked world. <

Very Important Robots 2016

HOW KUKA ROBOTS BECAME VIRs

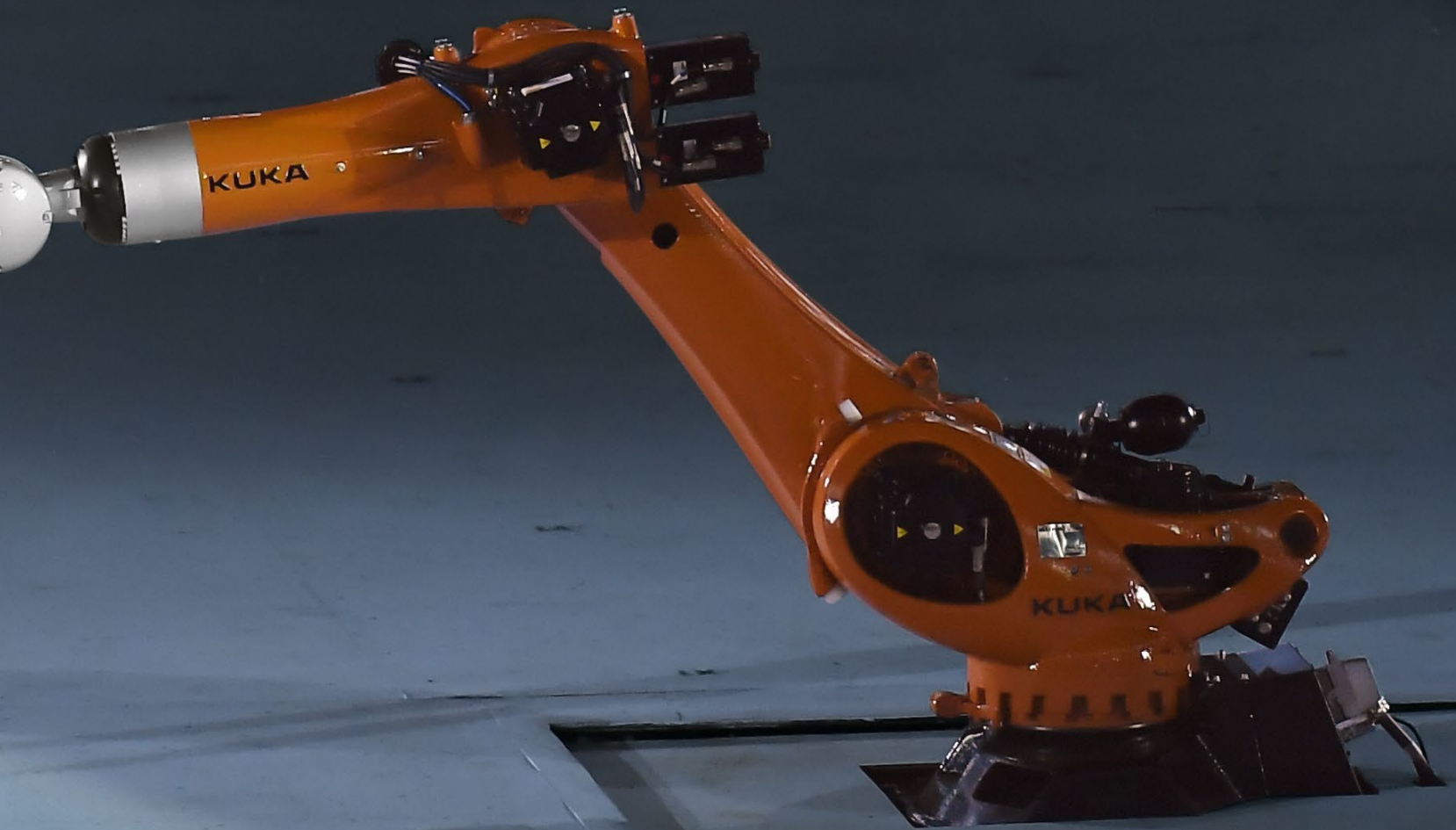


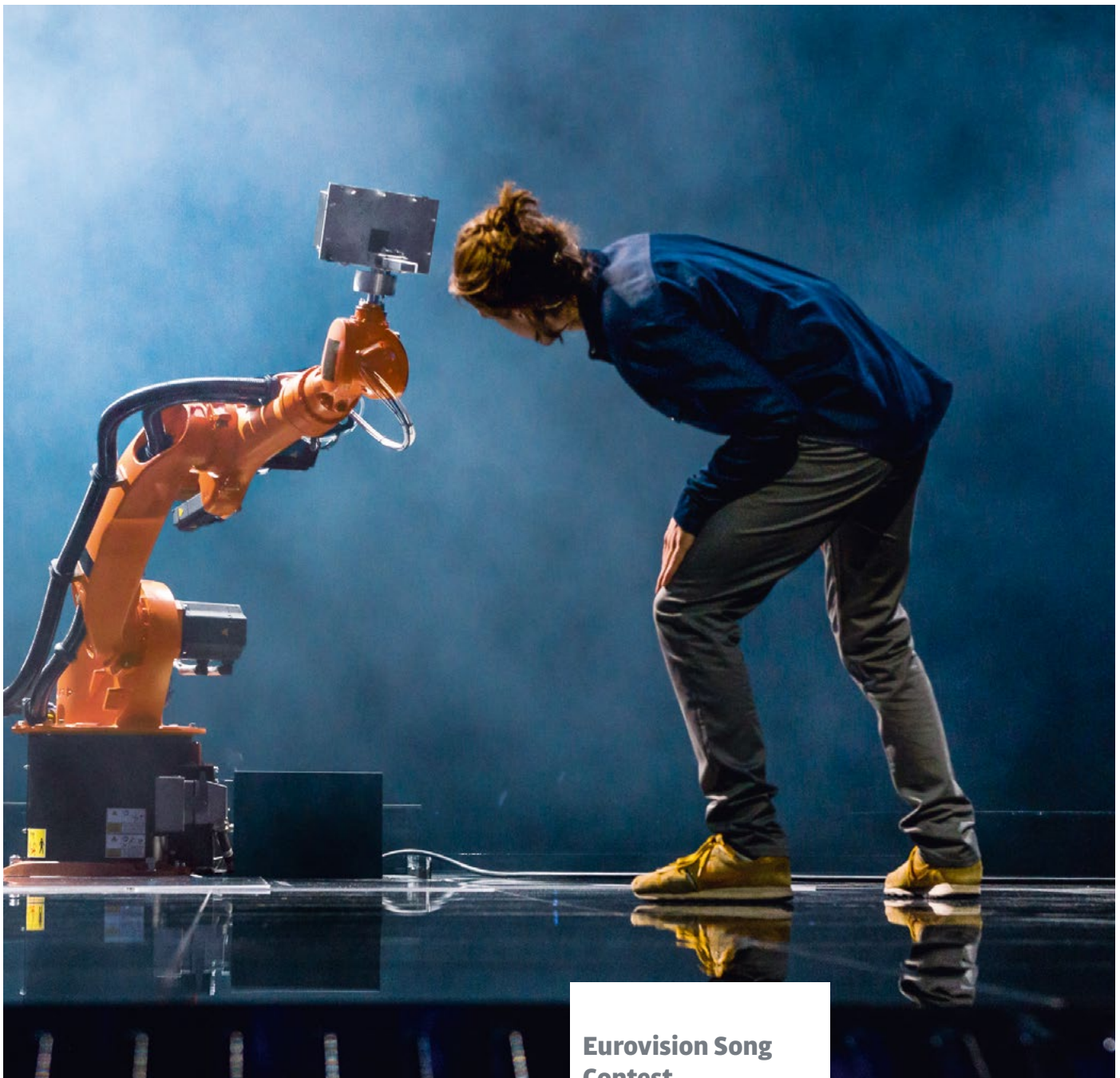
They have numerous talents, always perform at the highest level and are real eye-catchers. No wonder KUKA robots are in demand worldwide – even for the most unusual jobs.



Paralympic Summer Games

This spectacular show will certainly be remembered for a long time to come. At the opening ceremony of the 15th Paralympic Summer Games in Rio, a KR QUANTEC danced with US athlete Amy Purdy to the music of Brazil's Sérgio Mendes – a very special occasion.

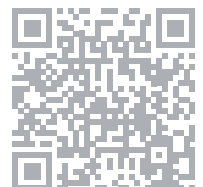




Eurovision Song Contest



In the second semi-final of the Eurovision Song Contest, an unusual dance ensemble caused great excitement. Three robots of the KR QUANTEC series teamed up with three human dancers to entertain the audience with an impressive performance.





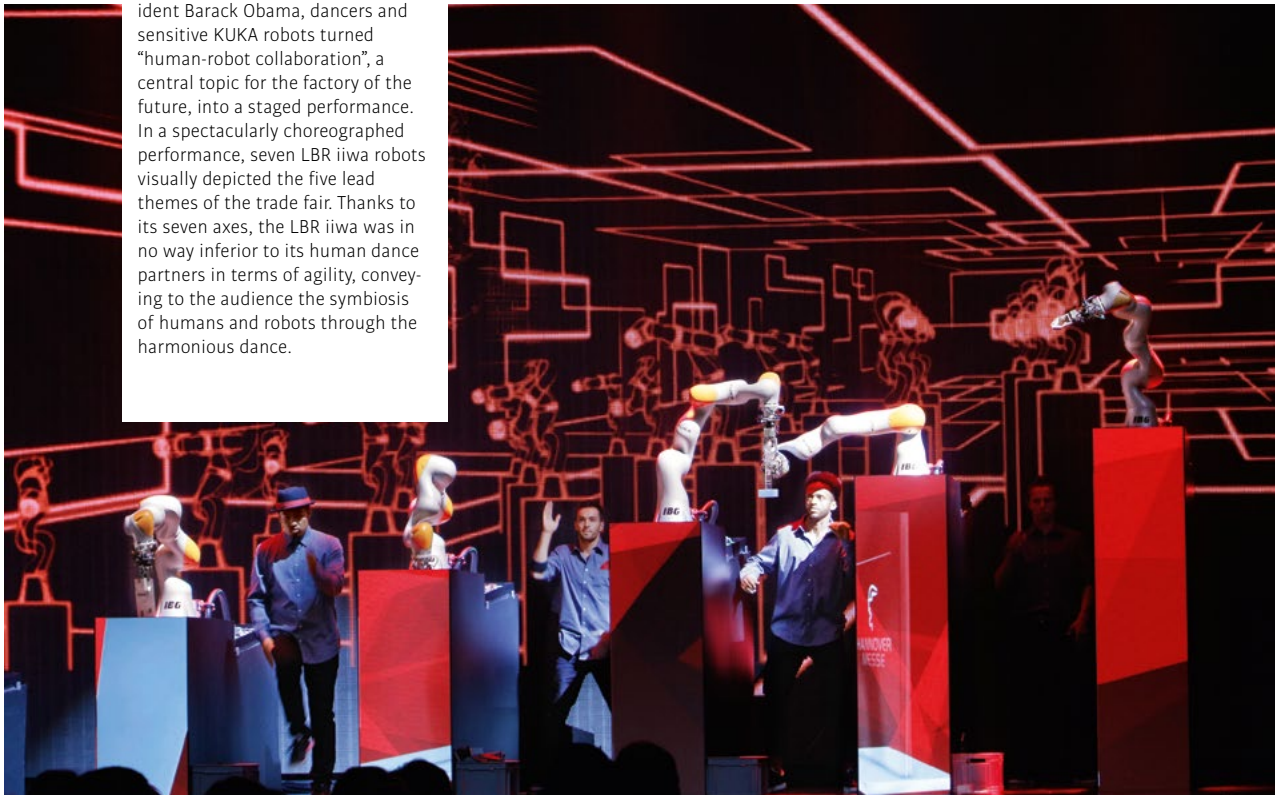
Olympic Games in Rio

On this occasion, it was not a robot but KUKA's brand ambassador Timo Boll who took center stage. At the opening ceremony of the Olympic Games in Rio, the table tennis pro carried the German flag into the legendary Maracana stadium, leading the German Olympic team. He had received the most votes from fans and athletes.



Opening of Hanover Fair

A human-machine choreography impressed at the opening ceremony of Hanover Fair. In front of some 3,000 guests including Chancellor Angela Merkel and former US President Barack Obama, dancers and sensitive KUKA robots turned "human-robot collaboration", a central topic for the factory of the future, into a staged performance. In a spectacularly choreographed performance, seven LBR iiwa robots visually depicted the five lead themes of the trade fair. Thanks to its seven axes, the LBR iiwa was in no way inferior to its human dance partners in terms of agility, conveying to the audience the symbiosis of humans and robots through the harmonious dance.

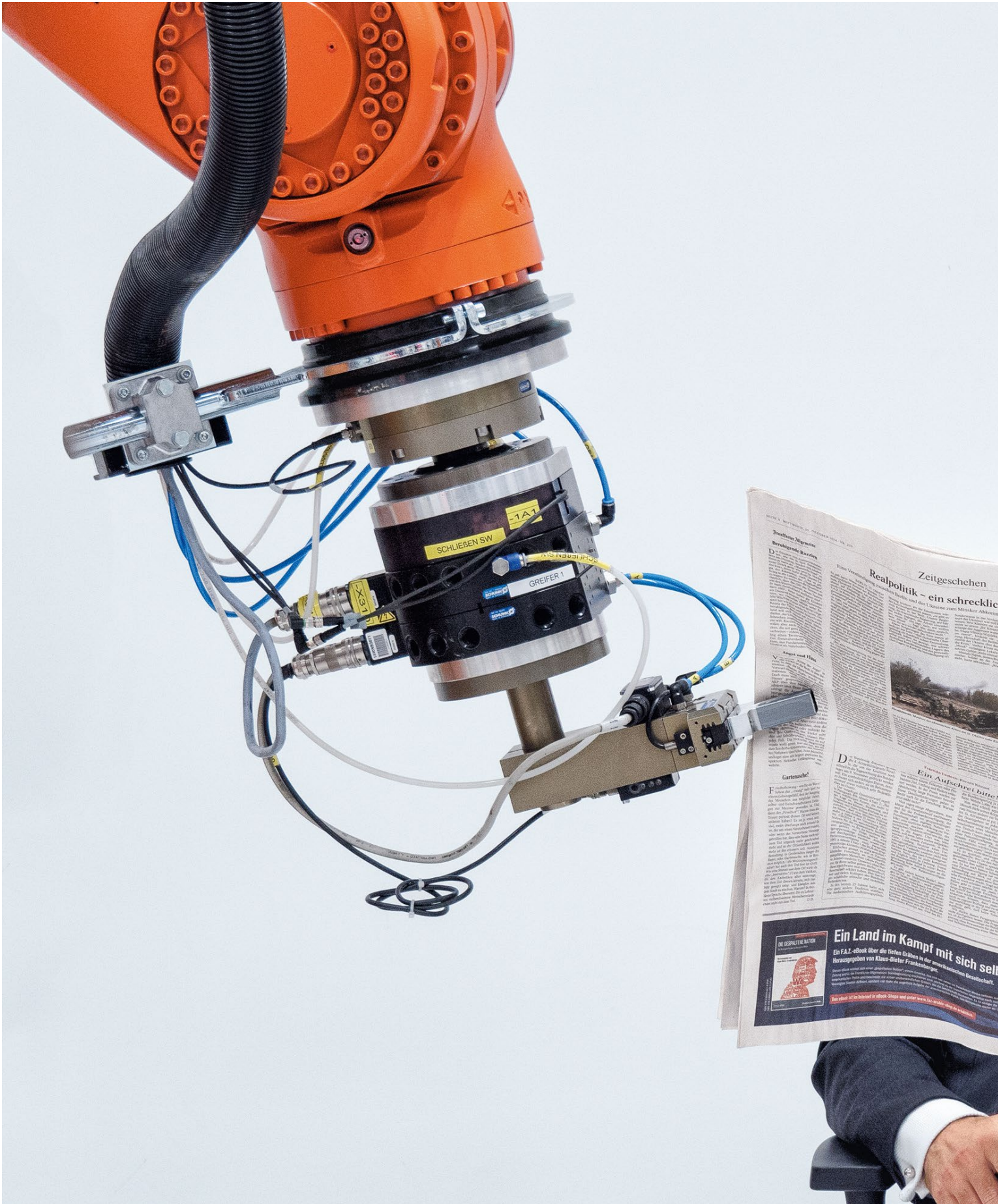




Hanover Fair

Not many can claim that they shook hands with Barack Obama and Angela Merkel. The LBR iiwa had this honor at Hanover Fair trade show. At the Weidmüller booth, Dr. Till Reuter, CEO of KUKA AG, introduced the sensitive KUKA robot to the heads of state.

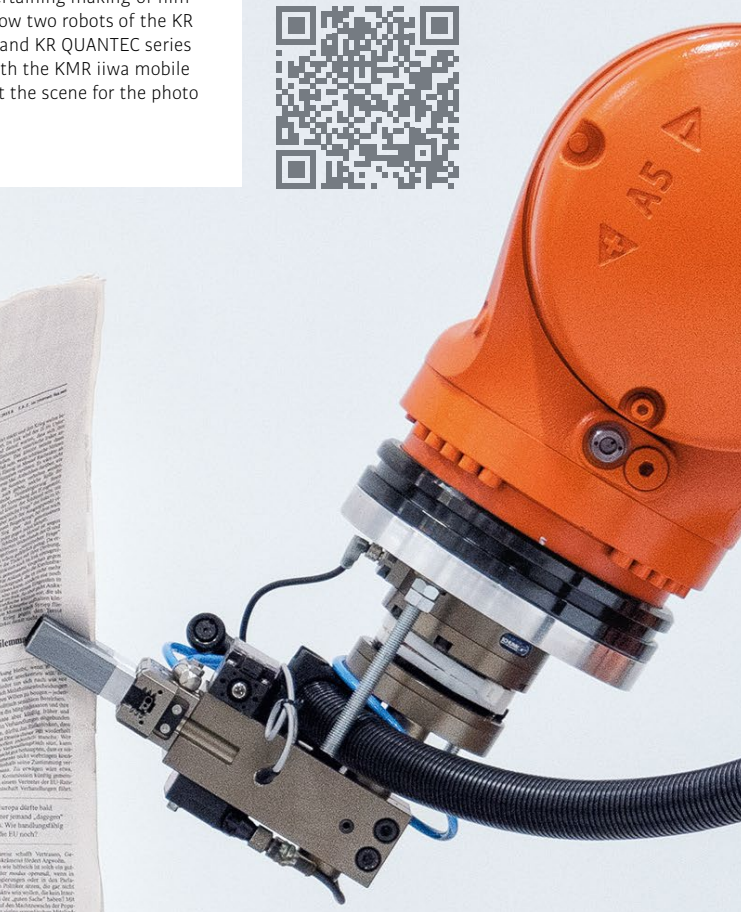
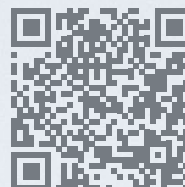




“FAZ” campaign

When CEO Dr. Till Reuter was photographed for the well-known campaign of the Frankfurter Allgemeine newspaper – “There is always a bright mind behind it” – robots naturally played a supporting role.

The entertaining making-of film shows how two robots of the KR FORTEC and KR QUANTEC series along with the KMR iiwa mobile robot set the scene for the photo session.



英基

TOWARDS THE EAST

Why KUKA is focusing on the Middle Kingdom

Rising wages, an aging society and higher demands on quality and flexibility are changing the manufacturing industry in China. More efficient and less physically strenuous production methods are increasingly being sought.

Many processes are not automated yet, which is why robots are in high demand, making this huge country an attractive market.

» Today, KUKA generates sales revenues of around €450 million in the People's Republic, with the goal of reaching the one billion euro mark there by 2020.«



The Middle Kingdom is getting ready for the future: virtually no other automation market has developed as dynamically as China over the last few years. According to the latest data from the International Federation of Robotics (IFR), China was the world's largest market in 2015 with approximately 68,600 industrial robots sold. This means the number of units sold increased by 20 percent over the previous year and exceeded the sales volume of all European markets combined (50,100 units).

The enormous potential in China is laid bare in a comparison with highly automated industrial countries: according to the IFR report, the density of robots across all manufacturing sectors in 2015 was 531 robot units per 10,000 employees in South Korea, which came out on top, and 301 units in Germany. The figure for China, on the other hand, was a mere 49 units, but with a strong upward trend.

And the ambitions of the Chinese are big: the People's Republic aims to pull even with modern industrial states, and it is using digitization to do so. "Manufacturing must become smarter, and it must be built upon technologies such as the Internet, cloud computing and big data," said China's Premier Li Keqiang during the 2016 World Economic Forum in Tianjin. The program "Made in China 2025", which was adopted in 2015, is intended to transform the People's Republic into a modern, innovative industrial power. Germany is an important technology partner in this undertaking.

For automation specialists such as KUKA, China is one of the most important growth markets. This is an aspect that is also anchored in the corporate strategy. Today, KUKA generates sales revenues of around €450 million in the People's Republic, with the goal of reaching the one billion euro mark there by 2020.



KUKA has a positive image in China and an edge with technology "made in Germany". The aim is for this positive perception to be further expanded in the years to come. Even after the acquisition by the Chinese group Midea, KUKA remains a company with German DNA and a German research location, though with top growth opportunities in China.

KUKA's new owner supports the growth strategy and will open the doors to China even wider. Particular standout opportunities are presented by such areas as service robotics and the electronics industry with its short life cycles and individual requirements. But to be successful in Asia, companies need to be on site in order to understand the market and the needs of its customers. >

KUKA is expanding: more production capacity in China

The Asian-Pacific region is a high growth market. This is why KUKA is further expanding its locations in this region and presenting products that are tailor-made for the Asian market. In its Shanghai-based Asia hub, KUKA has centrally concentrated various functions for the local companies since 2016. General services and consultancy services have been transferred from the individual regional companies and pooled at the hub, so that all expertise is concentrated in one place and the employees can collaborate efficiently across all of Asia.

Last year, the KUKA Industries division began with the expansion of its Kunshan location.

Since 2013, KUKA Industries has been designing and implementing turnkey robotic systems specifically for the Chinese market with a workforce of around 300 thus far. In November 2016, a ceremonial groundbreaking signaled the start of construction for the new building in the industrial city west of Shanghai.

Various projects pertaining to automation in the fields of battery production, casting technology and intralogistics are prefabricated and tested over an area of almost 18,000 square meters. The hall will be ready in January 2018 and can accommodate up to 200 additional workstations. The Swisslog division, which has been developing and assembling logistics systems in Kunshan since 2008, will also be working on automation projects in the new hall.

In addition, the Robotics location in Songjiang is expanding. The construction of a second production facility started in January 2017. <

The groundbreaking ceremony in Kunshan, China for the new building of KUKA Industries, with CEO Alwin Berninger.





Top left: The electronics industry is an important growth market for robot-based automation and requires tailor-made solutions.

Top right and bottom: The KR 3 AGILUS at the China International Robot Show (CIROS) 2016 in Shanghai – ideal for the electronics industry.

Premieres in Shanghai: product launches for new markets and industries

The new product series KR CYBERTECH was launched at the China International Industry Fair (CIIF) in Shanghai in November 2016. This includes compact robots that can be used for loading and unloading machines as well as for welding.

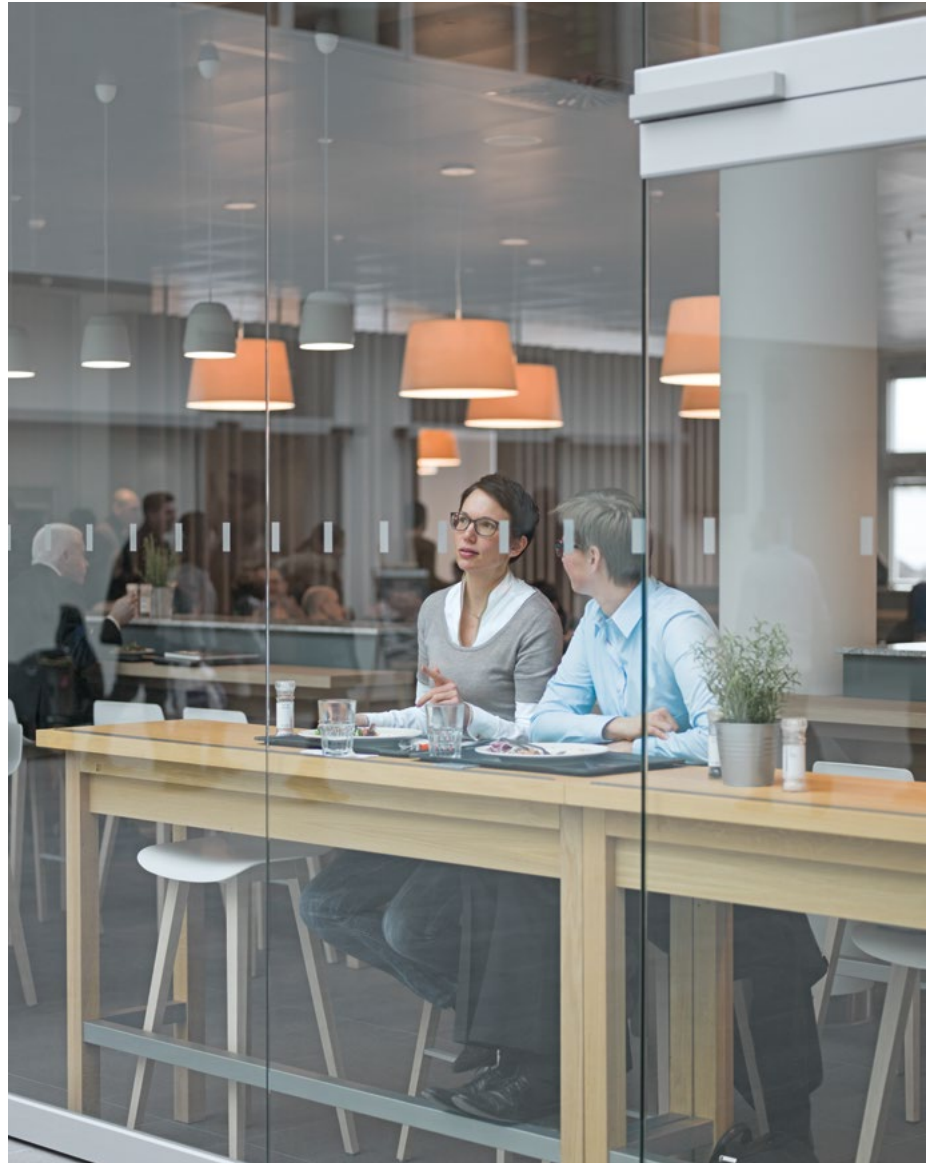
Previously, in July 2016, KUKA had presented a tailor-made robot for the 3C market (computers, communications and consumer electronics) to the Asian audience at the China International Robot Show (CIROS) in Shanghai. The newest member of the KR AGILUS family of small robots is extremely compact and thus an ideal solution for small cell concepts. In the Asian electronics industry, where production changeovers are frequent, it is crucial that the robots can be used flexibly. This was a major factor prompting KUKA to develop the KR 3 AGILUS. As the fastest six-axis robot in its class, it masters tasks that are required not only in the electronics industry, for example packaging applications, handling and component testing. <





TRADITION MEETS INNOVATION

Development and Technology Center in
Augsburg inaugurated



„We wanted to create an environment where our employees enjoy working and which is conducive to collaboration and creativity.“



Dr. Till Reuter

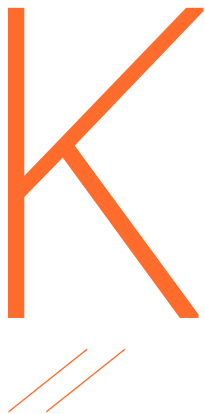
„It is very transparent. If you go up these stairs, you can see into the offices of your colleagues, and they can see you.“

Dr. Till Reuter

“Economic progress is currently being impacted by three major trends: globalization, automation, digitization – and KUKA is right in the middle of it,” was how EU Commissioner Günther Oettinger put it succinctly when he was invited to the inauguration ceremony at KUKA last summer.

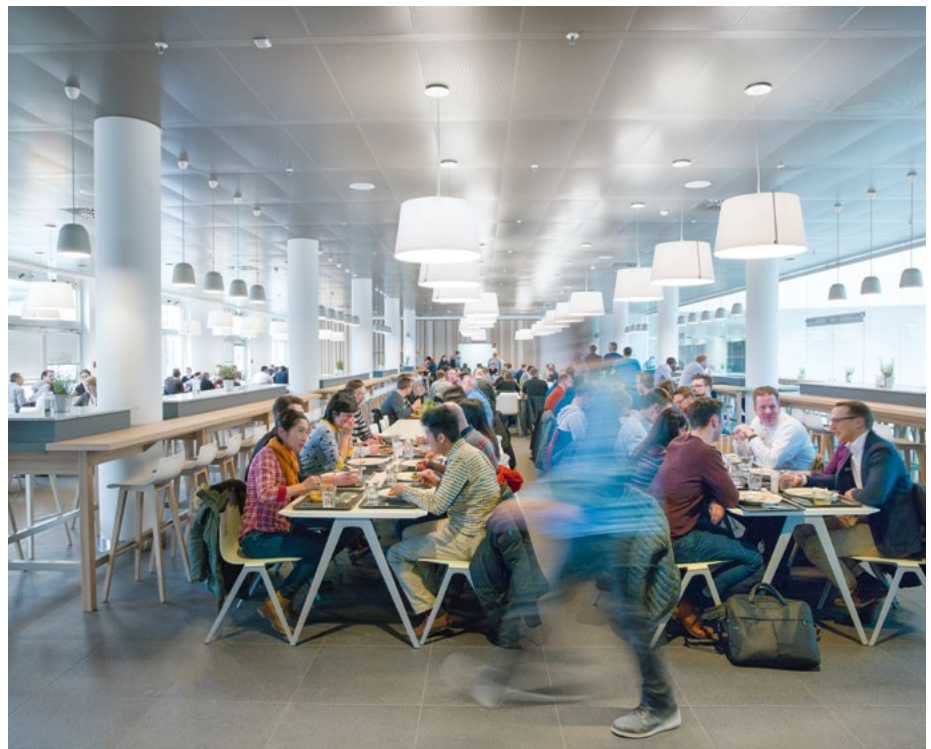
Innovative strength is what makes technology corporations successful and future-proof. The investment in the DTC is also an investment in R & D. It is the heart of KUKA, which is firmly rooted in Augsburg. With floor space of 39,000 square meters, the facility accommodates around 850 workplaces, more than half of them in R & D. The research and development activities are pooled at the DTC in order to create further innovations and products of tomorrow. Besides Günther Oettinger, other guests from business and politics were also invited to the inauguration of the new building. The ceremony was wholly dedicated to KUKA’s technologies, products and solutions for Industrie 4.0 and, by association, the digitization of production. Bavaria’s minister of economic affairs Ilse Aigner acknowledged the building as “a clear commitment to the Augsburg site and Bavaria as the company base.”

After the scheduled construction period of two years, the first employees were able to move into the building as planned at the end of 2015. The open-concept building provides a suitable setting for the creativity, innovative thinking and interdisciplinary cooperation needed to shape Industrie 4.0. Furthermore, the DTC houses an impressive showroom and KUKA College, where 7,000 customer employees are to undergo training each year. >

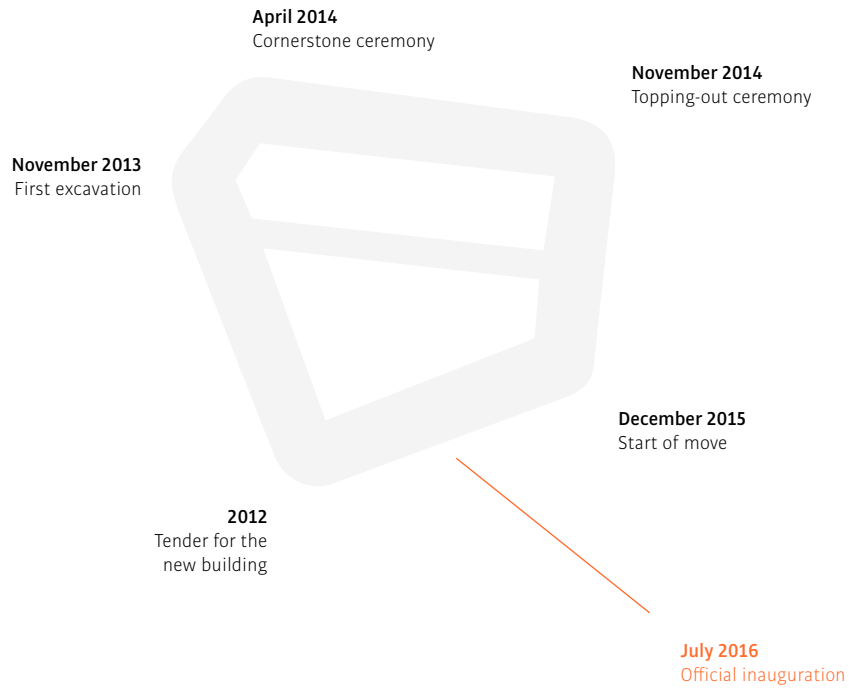


KUKA stands for Industrie 4.0 made in Germany. Deeply rooted at its home base in Augsburg where the success story of KUKA began almost 120 years ago. The new construction of the prestigious Development and Technology Center (DTC) is a landmark for KUKA’s progression. It represents the rapid growth of the company and also marks the starting point of the digital transformation. KUKA is quickly evolving into a global group, while also investing in its headquarters in Augsburg, where about 3,500 employees are working on the digital transformation of production. “The construction of the DTC is a clear investment in the future. Our traditional location in Augsburg is the basis for our global success,” emphasizes Dr. Till Reuter, CEO of KUKA AG. The modern building reflects the fusion of tradition and innovation. “This is where our employees combine mechanical engineering with the world of IT,” says Reuter.

A popular meeting place for lunch – the modern canteen is a great venue to share a meal with colleagues.



“The atrium provides an area where people can converse and network. It is like a marketplace. You meet and start a conversation. You exchange ideas.” Dr. Till Reuter



„This is where our employees combine mechanical engineering with the world of IT.“ Dr. Till Reuter





„A clear commitment to the Augsburg site and Bavaria as the company base.“

Ilse Aigner

Top left: Ilse Aigner, Bavaria's minister of economic affairs and media, energy and technology.



Top: Ursula Heller, journalist and television host in conversation with EU Commissioner Günther Oettinger and Dr. Till Reuter

Bottom left: Two mobile KMR iiwa robots assisted at the ribbon cutting ceremony.

„Economic progress is currently being impacted by three major trends: globalization, automation, digitization – and KUKA is right in the middle of it.“

Günther Oettinger

LOOKING TO THE FUTURE

How KUKA manages its own innovations

The word innovation comes from Latin and literally means renewal or change. New ideas and inventions are essential for technology companies, which is the reason why they are not left to chance. The team led by Chief Innovation Officer (CINO) Dr. Bernd Liepert is fervently addressing the question of what KUKA customers may need in 2032. This involves studying trends and exchanging information with research institutes. Innovation manager Elisabeth Schärtl explains how it works.



What does your job as Corporate Innovation Manager at KUKA entail?

Schärtl: In layman's terms: I'm looking into the future for KUKA. What will the world look like in 10 – 15 years? What will change? Particularly important are megatrends and how these impact people's behavior. Just look at digital natives, for example: for them, using smartphones and tablets is already a matter of course. Using robots will also be second nature to them, and they will define new applications for the robots. Or megatrends such as demographic change and globalization. It is our job to identify, on this basis, our customers' future needs, the problems they will face and the solutions that they will require. These are some of the questions we deal with. >



» Technology scouting is an important issue. You have to keep your eyes peeled at all times.«

Elisabeth Schärtl

To find appropriate solutions, you need accordingly advanced technologies. How do you track down key technologies that may be relevant?

Schärtl: Technology scouting is an important issue. You have to keep your eyes peeled at all times and think outside the box. After all, there may be interesting technologies around which are used in areas other than robotics, and which may be adaptable to robotics. This is why we cultivate long-term and very close contacts with the research community and maintain a lively exchange.

What sort of background and qualifications does a job like this require?

Schärtl: In terms of our team, I would say the secret lies in the mix. We are all from different sectors: natural sciences, humanities and social sciences. This allows us to approach trends and innovations from vastly different viewpoints. It enables us to look at the whole picture. If you take human-robot collaboration, for example, a business psychologist and an engineer focus on completely different issues. The psychologist asks how this sensitive robot may affect humans, how it will react to humans and what functions humans expect of a robot that is able to move within



Innovation Manager Elisabeth Schärtl networks intensively as part of her job.

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Competitive edge through networking

Swisslog is supporting British customer TJ Morris with Industrie 4.0 solutions for more efficient work processes. At the core is the cloud-based KUKA Connect platform.



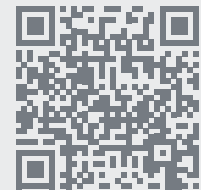
TJ Morris Ltd. with its “Home Bargains” stores is one of the fastest growing discount retailers in the UK. The company was established over 40 years ago by Tom Morris. Since the first store was opened in Liverpool, the business has grown organically and has become one of the biggest privately owned companies in the UK with 400 stores and over 17,000 employees. This makes it the largest employer on Merseyside and the nation’s largest independent food retailer. TJ Morris continues to grow. The stated goal: 800 stores and more than 30,000 employees in total.

Optimized processes can help achieve this objective. TJ Morris has been a Swisslog customer for many years, making it an ideal partner for talking about Industrie 4.0 solutions. A joint workshop in 2016 was used for a lively

exchange of knowledge, which quickly resulted in potential applications being identified for the cloud-based solution KUKA Connect. KUKA Connect collects and processes the entire information from all networked devices on a central basis. This knowledge allows users to register error messages in real time, to monitor maintenance activities and condition data, and to produce comprehensive event logs.

TJ Morris would benefit from a major competitive advantage by integrating the Swisslog data into an enhanced planning system deployed across all stores and sites. An XML database is currently under joint development in order to implement a computerized maintenance management system (CMMS) at an additional site. This is the ideal basis for developing further Industrie 4.0 solutions, such as a

pilot system for predictive maintenance scheduling with associated event notification. Furthermore, KUKA Connect has been defined as a professional front end application for TJ Morris’s ongoing developments. This means that in the future TJ Morris can serve as a proof of concept platform for integrating Swisslog products into the tool.



their environment – coming closer to them in daily work, so to speak. For example in assembly activities, where the robot may assist humans with joining tasks. The engineer, on the other hand, considers the technical possibilities. Interdisciplinary collaboration is very important.

Speaking of interdisciplinary approaches: how do you convince colleagues of the validity of an innovation? Not everyone thinks that far ahead.

Schärtl: That is true. Regular communication with colleagues from other areas, such as sales, project management and development is important in order to keep your feet on the ground. On the other hand, we also need to enthuse our colleagues in the company about technologies and innovations, so that these will be widely accepted within the company. Companies operate in the now and in the near and foreseeable future. It is important to strike a balance between these two worlds.

How are the Development, Corporate Research and Innovation Management departments demarcated?

Schärtl: The Innovation Management department looks the farthest ahead. We examine how the world might look like in 10 – 15 years and extrapolate customer needs and possible solutions which KUKA may be able to offer. Corporate Research focuses on the somewhat nearer future. This department researches and develops technologies, collaborating with research partners in the context of funded projects at EU level, for example. From idea to demonstrator, so to speak. Once the demonstrator has been successfully evaluated, the next stage – series development – begins. <

2 //

Teamwork in confined spaces

At BMW, humans and robots work hand in hand. In a team effort, they lift the differential cases for the front-axle transmissions and join them together – without any protective fences or external safety technology.



One of the challenges was the small space, because the system had to fit into the production line. To achieve this, a streamlined gallows-shaped steel structure was built at the manual workstation, on which the sensitive LBR iiwa lightweight robot is suspended. The robot's gripper was equipped with an edge-free HRC case with a rounded design, so that the operator is protected from injury at all times.

At this new workstation, the team consisting of a human operator and a robot needs only half a minute to fabricate the differential case. The operator performs the tasks that are not as physically strenuous. For example, he places the small and lightweight parts, such as spacers and ball bearings, into the transmission case and the cover. The operator then activates the robot, which carefully fits the heavy differential case in place. The robot's tactile capabilities facilitate the process of meshing the delicate tooth flanks into the gears. The operator then fastens the cover to the transmission. The advantage: the job is less strenuous for the human coworker. Today, production facilities are increasingly tasked with handling many variants. Flexible HRC units can provide a clear competitive advantage by allowing production to adapt to the capacity requirements. <

For about a year, the specialists from the Application Engineering Team at KUKA Systems tinkered away together with their colleagues at BMW in order to find this HRC solution. HRC stands for human-robot collaboration. Where BMW employees previously had to lift and fit cumbersome differential cases weighing up to 5,5 kilograms with millimeter precision when assembling front-axle transmissions, the robot now performs this ergonomically demanding task.

CAN ROBOTS DREAM?

How robots use idle periods to learn

Corporate Research is currently working on the EU-funded project RobDREAM, among other things. “Much like humans process and consolidate their daily experiences during sleep, the idea is to make robots do the same,” explains Dr. Rainer Bischoff, Head of Corporate Research.

This means that robots use idle periods to process the empirical knowledge gained during operation. In this way, times of inactivity are used to enhance the capabilities of the robots in order to achieve a faster performance the next day.

How does it work? “During idle periods, sophisticated optimization calculations run in simulations,” says Bischoff, offering up the following example of a typical application in which a robot is tasked with assisting a component picking process: the components are to be retrieved from a warehouse and made available in a box for the subsequent assembly operation. To learn this task, it suffices to show the robot the individual components and define the quantities for a particular picking process. The robot detects the components to be picked in the warehouse using a 3D camera, grasps them and places them in the desired box one after the other. During the working day, the robot figures out where the components are typically located in the warehouse, where obstacles are and where the empty boxes are. Ultimately, the robot reaches an optimum speed of execution as a result of simulation and experimentation with different path planning algorithms and sets of parameters. <



The EU-funded project RobDREAM: the robot optimizes its workflows through extensive simulations during idle periods.

GENERATION R – ROBOTIC NATIVES

How innovations affect social changes

Dominik Bösl is also an innovation manager at KUKA. One of the questions that he deals with: how do innovations impact the future and society?



Mr. Bösl, we frequently read about how robots will be hailed a technical achievement similar to smartphones not long ago.

Bösl: Robotics will change the world! Robots, automation technology and artificial intelligence will develop at least as much potential to shape the next half-century as the Internet, computers and smartphones had in the past half-century. Personally, I'm convinced that these technologies will become a mainstay and enrich our everyday lives.

We are certain to witness this trend – making us the very first robotic immigrants – albeit with a very analog migratory background, but this will quickly change. For our grandchildren, robotics will be second nature – they will be the first generation R of robotic natives!

As someone who deals with innovations on a daily basis: are these all positive changes or are you also considering the risks that disruptive technologies can bring with them?

Bösl: Revolutionary technological inventions mean change. Initially, people are always skeptical. When the first rail lines were built, the prevailing skepticism was that the human body would not be able to survive the incredible acceleration and high top speed of up to 30 kilometers per hour. We may laugh at this today, but robotics and artificial intelligence are subjected to the same kinds of controversial discussions, which, unfortunately, are not always positive.

What is the source of this, in your opinion?

Bösl: There are two primary reasons: for one, robotics and artificial intelligence have arrived in the public perception through the so-called “Hollywood effect”. In the last year alone, more than ten Hollywood blockbusters have dealt with this topic – and audiences love science fiction. On the flip side, we also have neo-Solomonic experts opining on the issue. Unfortunately, this topic is viewed in terms that are often too broad, and unrealistic horror scenarios such as the Terminator or rampant artificial intelligence are conjured up.

Let's change topics for a moment. Much is written about the potential loss of jobs due to robots becoming more and more intelligent.

Bösl: History and statistics show that technology – and especially robotics and automation – has created more jobs since the first industrial revolution than the number of jobs lost during the same period. Just look at the automotive industry, for example.

However, the job profiles of certain occupations will be changed by technology. So we must ask ourselves how we can educate the industrial workforce in the future and what the appropriate vocational training should look like. This is why companies like KUKA are collaborating with research, industry and workers' organizations. <

„History and statistics show that technology has created more jobs since the first industrial revolution.“

Dominik Bösl



Dominik Bösl,
Innovation Manager at KUKA

Dr. Bernd Liepert, Chief Innovation Officer (second from left) and Dr. Rainer Bischoff, Head of Corporate Research (left) presented the lucky winners their prizes at Hanover Fair.



KUKA INNOVATION AWARD

For many years now, KUKA has been working closely with university and R & D partners from all over the world. Under the patronage of Dr. Bernd Liepert, Chief Innovation Officer of KUKA Group, KUKA launched the Innovation Award to promote innovation in the field of robot-based automation and to support technology transfer from science to industry.

The research competition is aimed at developers, graduates and research teams from companies or universities around the world. The participants develop ideas for tackling challenges specified by KUKA. The finalists, selected

by a jury of experts, implement their projects using KUKA hardware and present the results to wide-ranging specialist audiences at major trade fairs. The winners receive a monetary prize of 20,000 euro. The award was first presented at Automatica 2014.

In 2016, a research team from Johns Hopkins University in Baltimore impressed the specialist panel with a system that enables users to react to new situations or external influences and to redefine complex tasks for the robot. The year before that, a young team from Italy won the award with an upper-limb exoskeleton that communicated with the sensitive LBR iiwa lightweight robot. <



3 //

Technology for perfection

Using their process know-how, the experts from KUKA Industries are optimizing the manufacture of XXL cranes, creating the basis for competitive steel construction products through the use of sophisticated processes.

Truck-mounted cranes are impressive. With a height of up to 100 meters, these slender giants are head-turners on every construction site. That reach may suffice for many high-rise buildings and most bridges, but not the construction of wind turbines. Thanks to a telescopic arm, an additional extension of 92 meters is made possible. The booms for telescopic cranes are welded together lengthwise from two half-shells. And the welds have to withstand very heavy loads – these cranes lift up to 1,200 tonnes. Even with the ever increasing demands on load capacity and boom length, the weight of the crane itself must also be optimized. High-strength steels are used for the purpose of lightweight construction here.

When two folded plates are welded over such lengths, thermal distortion can result. This is a quality risk that can have serious consequences if neglected. But for welding specialist KUKA Industries, this is not a problem: using a laser hybrid welding process, the weld distortion has been reduced to virtually zero, so that the boom components no longer have to be manually reworked in these areas. Further advantages: welding at very high speeds is possible and the molten weld pool is relatively small. The laser beam is focused with great precision and generates a very deep and narrow seam with low heat input into the component. The greater welding depth obviates the need for welding from inside with the result that only two seams are required.

With a maximum component length of 22 meters and two continuous weld seams, determining the actual position of the component within the system is a major challenge. Such bulky components can never be manufactured and positioned without minor dimensional tolerances. KUKA Industries offers its customers exact seam tracking with an integrated laser camera which is able to meet the requirements and cope with the extreme conditions at the welding head. In conjunction with specially developed software, the camera monitors correct seam tracking and ensures process reliability even at the highest welding speeds.

The system is based on a gantry robot, which is able to travel along the entire path of the long components without the position of the component having to be changed. It is equipped with hybrid welding optics specially developed by KUKA Industries. A single clamping set-up in the cell is sufficient for execution of the entire welding process. The elimination of distortion leads to a further reduction of the clamping equipment requirements.

This unique system shows how innovative, sophisticated techniques enable the competitive manufacture of steel construction products in Germany that can also help to save resources. It incorporates a process that has been enhanced to perfection. <

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FINANCIAL REPORT
2016



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Dr. Yanmin (Andy) Gu
Chairman

Supervisory Board report

Dear Shareholders,

We, the Supervisory Board, can look back on a positive fiscal year for the company in which we exercised our control and advisory function to provide the Executive Board with intensive support in managing the company. The cooperation was both constructive and trusting. We shall start off by singling out the most important event for the company. This was the takeover bid addressed to the shareholders of KUKA Aktiengesellschaft by MECCA International (BVI) Limited, a wholly-owned company of Midea Group. We concerned ourselves with this bid in great depth. Our activities also focused on corporate planning and the company strategy.

The Supervisory Board held plenary sessions and organized telephone conferences. This involved a lot of hard work for the different committees. The Supervisory Board attended the company's Annual General Meeting on May 27, 2016. The Supervisory Board continuously monitored business development, particularly through the regular management report presentations by the Executive Board at the meetings of the Supervisory Board. The Executive Board informed us of orders received, sales revenues, EBIT, staffing numbers and other key indicators. These results were then discussed and consultations held especially with regard to deviations from the budget; this primarily related to the higher volume of orders received on the one hand and the lower cash flow on the other. Outside the Supervisory Board meetings, the Chairman was in constant contact with the Executive Board and was therefore constantly kept up-to-date with the economic situation of the company. The other members of the Supervisory Board too, predominantly those chairing the committees, repeatedly had close contact with the Executive Board members, during which they discussed various business transactions. This rendered the Supervisory Board capable of giving optimal attention to its control and advisory function.

Corresponding to the legal requirements, it resolved in plenum concerning all questions of Executive Board emoluments. The Supervisory

Board discussed the reasoned opinion on the Midea takeover bid at extraordinary meetings. It also had to deal with transactions requiring approval such as those relating to the sale of the Systems US Aerospace segment.

Changes to the Executive Board and Supervisory Board

The Executive Board is unchanged, with Dr. Till Reuter, CEO, and Mr. Peter Mohnen, CFO. Dr. Till Reuter's appointment lasts until April 25, 2020 and Mr. Peter Mohnen's until July 31, 2020. In view of the above terms in office, the Supervisory Board has set the quota for female Executive Board members at 0% as of June 30, 2017 (fulfillment deadline).

Various changes took place on the Supervisory Board. Mr. Thomas Knabel resigned from the Board at the end of the Annual General Meeting on May 27, 2016 and Mr. Hans Ziegler left on December 1, 2016. Dr. Constanze Kurz succeeded Mr. Thomas Knabel on June 1, 2016. A replacement was not appointed for Mr. Hans Ziegler during the year under review. At the extraordinary Supervisory Board meeting on June 25, 2016, Dr. Constanze Kurz was appointed a member of the Technology and Production Committee and Mr. Michael Leppek a member of the Audit Committee.

The Supervisory Board would like to thank Mr. Thomas Knabel and Mr. Hans Ziegler for their commendable support during their terms of office. The Supervisory Board remains elected until the Annual General Meeting of 2018. In view of the continuing periods in office, the Supervisory Board on December 11, 2015 set itself a target quota for female members of 8.33% by June 30, 2017 (fulfillment deadline). The actual quota of two females out of a total of eleven acting members amounted to 18.18% at the end of the year under review.

Meetings of the Supervisory Board and its committees

The Supervisory Board held 14 plenary sessions. It passed one resolution by written circulatory procedure.

On March 8, 2016 the Supervisory Board met for its financial review meeting. During this meeting, the Executive Board presented the annual financial statements for 2015 and the consolidated financial statements and consolidated management report for KUKA Aktiengesellschaft and the Group. In discussing this item on the agenda, the Executive Board explained the annual financial statements and KPMG in its role as auditor along with the Chairman of the Audit Committee presented their reports concerning them. The Supervisory Board approved the annual financial statements of KUKA Aktiengesellschaft. The Supervisory Board then endorsed the Executive Board's vote to approve, as a proposal to the Annual General Meeting, the distribution of a dividend of €0.50 per share, carrying forward the remaining balance sheet profit. The Supervisory Board also adopted the consolidated financial statements for 2015. The Supervisory Board approved the Corporate governance report and dealt with the other proposed resolutions for the Annual General Meeting planned for May 27, 2016; for this purpose, it convened by telephone on April 7, 2016 for a final discussion of these issues. The proposed resolutions also included an application for an amendment to the Articles of Association on remuneration for committee members. A further item on the agenda was the resolution and approval of the report of the Supervisory Board for the 2015 fiscal year. Finally at this meeting, the Supervisory Board had to decide on the variable emoluments of the members of the Executive Board, as well as the achievement levels for the personal targets of 2015 and the specification of personal targets for the 2016 fiscal year, as well as the definition of key parameters for the phantom share program 2016 – 2018. Lastly, the Supervisory Board agreed to the shareholding of its Chairman, Mr. Minning, in the newly established company "MIRA".

Extraordinary meetings, some of them by way of telephone, were held on May 18 and June 14, 15, 16, 21, 25 and 28, 2016 in relation to the Midea takeover bid on which the bidder had communicated its decision on May 18, 2016 pursuant to section 10 of the German Securities Acquisition and Takeover Act (WpÜG) and which was then issued and published on June 16, 2016.

The Supervisory Board met before and after the Annual General Meeting held on May 27, 2016. It prepared for the Annual General Meeting and subsequently analyzed it. It also produced a report on the internal control system (ICS).

The meeting on October 11, 2016 was devoted to Group strategy. The Group strategy as well as the individual strategies of Robotics, Systems, including KUKA Industries, and Swisslog were discussed. Our deliberations were greatly influenced by the journey towards digitization together with our customers and the associated range of Industry 4.0 solutions. The CTO strategy related to the further development

of human-robot collaboration among other issues. However, the focus was also on the expansion of business activities in fast-growing and profitable markets. The evaluation results of the latest review of its efficiency were presented to the Supervisory Board. The shareholding of the Chairman of the Executive Board, Dr. Reuter, in KBee AG was a special item on the agenda. In order to deconflict the situation, a resolution was adopted in relation to a partial purchase offer made by KUKA Aktiengesellschaft to Dr. Reuter for the acquisition of KBee shares.

At an extraordinary meeting on October 25, 2016, the Supervisory Board deliberated on an agreement with the 49% shareholders of Reis Group Holding GmbH & Co. KG in respect of disputes relating to the original agreement, under which KUKA had purchased a 51% shareholding, and on the acquisition of the remaining 49% of company shares. This also entailed the business premises in Obernburg remaining with the company. The Supervisory Board agreed to this.

The final meeting of the full Supervisory Board in 2016 took place on December 15. This meeting focused on planning. The Supervisory Board passed a resolution to approve the 2017 budget and the medium-term planning up to 2019. The work of the committees was also reported on at this meeting. Furthermore, the Supervisory Board agreed to the sale of the Systems US Aerospace business at this meeting. As part of the ongoing professional training of the Supervisory Board, an expert presentation was held on the latest developments in insider legislation with a particular focus on the duties of supervisory board members.

The written resolution concerned the declaration of compliance and declaration regarding corporate management.

The Supervisory Board promptly addressed the takeover procedure initiated by Midea at the aforementioned extraordinary meetings. It received reports from the Executive Board about talks with Midea, including those held in advance and in relation to the current level of investment and potential fields of cooperation. It acknowledged the details of the takeover bid addressed to the shareholders of the company, which were then also included in the bid document published on June 16, 2016. In particular, the Board concerned itself with the offer price amounting to €115 per share and the takeover premium included in this figure. The investment agreement to be concluded between the company and Midea also offered a broad scope for discussion with a particular focus on the commitments to forgoing structural interventions, retaining the industrial property rights at KUKA and protecting access to customer data, as well as on agreements regarding locations and employee rights. The 7½-year term of the investment agreement, during which the independence of KUKA would be guaranteed, was accorded particular importance.

The Supervisory Board was supported by an external legal attorney in relation to the reasoned opinion provided for in section 27 of the Securities Acquisition and Takeover Act (WpÜG). It also discussed whether the investment agreement should be made subject to the approval of the Supervisory Board, but no resolution was adopted on this.

Representatives of Goldman Sachs and Deutsche Bank were consulted on the fairness opinions obtained by the company in respect of the offer price of €115 per share. The statements of Commerzbank and Berenberg in this regard were reported on.

The Supervisory Board deliberated in depth on the reasoned opinion it was required to submit on the Midea takeover bid at the extraordinary meeting held on June 25, 2016. The Executive Board members were not present for this part of the agenda. The Supervisory Board also lifted the selling restriction on KUKA shares held by Executive Board members pursuant to the ownership guidelines of the phantom share programs in order to enable them to accept the Midea takeover bid. The Executive Board members were not present at the meeting when this item was discussed either.

In a joint reasoned opinion with the Executive Board, the Supervisory Board ultimately approved the recommendation for KUKA shareholders to accept the Midea takeover bid at the extraordinary meeting held by telephone on June 28, 2016 (N.B.: the above-mentioned reasoned opinion can be viewed at <https://www.kuka.com/en-de/investor-relations/takeover-offer-midea-mecca>).

All Supervisory Board members participated in more than half of the Supervisory Board meetings; all Supervisory Board members with the exception of Dr. Constanze Kurz in the Technology and Production Committee attended more than half of the meetings of the committees to which they belonged (German Corporate Governance Code, section 5.4.7). Unless otherwise stated, the Supervisory Board met in the presence of the Executive Board with the exception of issues in relation to Executive Board remuneration (German Corporate Governance Code, section 3.6) and Dr. Reuter where his potential conflict with regard to his shareholding in KBee was concerned.

The Supervisory Board had the following committees during the year under review: Personnel Committee (chaired by Mr. Minning), Audit Committee (chaired by Mr. Ziegler until December 1, 2016), Strategy and Development Committee (chaired by Mr. Minning), Technology and Production Committee (chaired by Prof. Dr. Loos) and Mediation Committee pursuant to section 27 para. 3 of the German Co-determination Act (MitbestG) (chaired by Mr. Minning). A Nomination Committee also existed in accordance with section 5.3.3 of the German Corporate Governance Code (chaired by Mr. Minning).

The Personnel Committee met four times during 2016. It prepared all the items on the agenda of the plenum concerning issues relating to the Executive Board. Items on the agenda were primarily Executive Board remuneration and the matters addressed above relating to KBee shares held by Dr. Reuter.

The Audit Committee convened five meetings during the year under review. Regular discussions took place on the results in connection with the treatment of the respective financial statements. The committee was also occupied with new rules of procedure for the Audit Committee, the EMIR audit on compliance with section 20 of the German Securities Trading Act (WpHG) in relation to foreign currency management and the financial effects of the Midea takeover bid.

The committee regularly paid particular attention to risk management and compliance issues. Six extraordinary meetings of the Audit Committee also took place, the subject of which was the further cooperation with KBee.

The Strategy and Development Committee was convened three times. The meetings involved, for example, discussing the sales approach in the field of Industrie 4.0, various technology topics relating to the strategic focus of the company, and the strategies of the individual divisions.

The Technology and Production Committee held five meetings. The Industrie 4.0 roadmap was a regular item on the agenda. However, the committee additionally addressed logistics issues and product quality, as well as deliberating on the optimization of robot production.

There was no occasion to convene the Mediation Committee.

The Nomination Committee convened once in 2016 in order to discuss the future composition of the shareholders' representatives on the Supervisory Board in relation to the Midea takeover.

Independence and conflicts of interest, declaration of compliance

It must be noted that Dr. Hubert Lienhard is CEO of Voith Group and Dr. Friedhelm Loh is sole shareholder of SWOCTEM GmbH as well as owner and managing director of the Loh group of companies. According to the WpHG notifications (as of December 31, 2016), Voith Group held an interest of 25.10% and SWOCTEM GmbH an interest of 10.018% in KUKA Aktiengesellschaft in the year under review. KUKA Group has business relations with firms in Voith Group as well as the Loh group of companies. The indirect relationship between the Chairman of the Supervisory Board, Mr. Minning, and KBee AG was already discussed in the 2014 annual report. KBee AG maintains a business relationship with KUKA Group. This relationship was on the agenda of the Supervisory Board, especially that of the Audit Committee. Mr. Minning did not take part in any of these discussions. On these occasions, the Deputy Chairman of the Supervisory Board, Mr. Leppek, then chaired the Supervisory Board meetings. The Audit Committee also requested the ombudsman for compliance issues to draw up an external expert opinion on dealing with the conflict of interest.

The Supervisory Board and the Executive Board submitted identical declarations in accordance with section 161 of the German Stock Corporation Act (AktG). The Executive Board and Supervisory Board made their annual declarations on February 8, 2017. The declaration of compliance was made permanently available to shareholders on the company's website.

Work with the auditors

The annual financial statements of KUKA Aktiengesellschaft as of December 31, 2016 and the consolidated financial statements of KUKA Group as of December 31, 2016, as well as the consolidated management report of KUKA Aktiengesellschaft and KUKA Group, including the bookkeeping, were audited by auditors KPMG Aktiengesellschaft, Wirtschaftsprüfungsgesellschaft, Berlin, which issued an unqualified audit opinion in each case on February 28, 2017. The auditors also checked the monitoring system as per section 91 para. 2 of the German Stock Corporation Act (AktG), the purpose of which is the early detection of developments that could threaten the company's existence. KUKA Group's mid-year report dated June 30, 2016 was also reviewed by the auditors. KUKA Aktiengesellschaft's consolidated statements were prepared in accordance with section 315a of the German Commercial Code (HGB) based on the International Accounting Standards (IFRS) as adopted by the European Union.

The Supervisory Board's Audit Committee appointed the external auditors, KPMG, as per the resolution at the Annual General Meeting of May 27, 2016. During the course of appointing the auditors of the financial statements of the company and the Group, the chair of the Audit Committee and the chairman of the Supervisory Board conducted a review with the auditors regarding key audit issues, scope and fees. The auditors agreed to immediately inform the chair of the Audit Committee about any disqualification or bias issues encountered during the audit, provided such disqualification or bias issues could not immediately be resolved. The auditors also agreed to report on an ongoing basis during the audit all material findings and developments arising during the audit that were within the scope of the Supervisory Board's responsibilities. Furthermore, the auditors were instructed to inform the Supervisory Board, or note in the audit report, if information was encountered during the audit that was contrary to the declarations released by the Executive Board and Supervisory Board as per section 161 para. 1 sentence 1 of the German Stock Corporation Act (AktG).

Finally, the Audit Committee obtained the arm's length declaration of the auditors in accordance with section 7.2.1 of the GCGC and monitored the auditors' independence.

As in the previous years – always in respect of other topics – the company asked the auditors to focus especially on a number of items during the annual review of the 2016 fiscal year, such as the impairment test for Reis, the earn-out obligations of Reis and Faude, the capitalization of software in relation to PowerON and Orange Globe, deferred taxes in relation to the potential takeover by Midea and the presentation of the results of Midea one-off effects in segment reporting. The auditors found no major issues regarding these items.

On March 7, 2017, the auditors gave the Audit Committee chair a detailed explanation of the preliminary audit results. Because they had been contracted to review the June 30, 2016 mid-year financial report, the auditors attended the August 2, 2016 Audit Committee meeting.

In a joint meeting with the auditors on March 7, 2017, the Audit Committee reviewed the two sets of financial statements for fiscal 2016, taking into consideration the auditors' reports. The Executive Board and the auditors presented the highlights of the financial reports to the panel. The Audit Committee members reviewed, discussed and checked in detail the documentation relating to the financial statements and discussed the audit report in depth with the auditors. The auditors answered the questions posed by the Audit Committee members. The Audit Committee reported to the Supervisory Board on the results of its discussions during the Board's meeting on March 21, 2017 and recommended that the Board approve KUKA Aktiengesellschaft's annual financial statements and KUKA Group's consolidated annual financial statements for fiscal 2016.

The full Supervisory Board reviewed the draft annual financial statements and the Executive Board's recommendation on appropriation of net income on March 21, 2017. The auditors, KPMG, attended the Supervisory Board meeting in order to report on material findings in the audit and to provide additional information. All members of the Supervisory Board were in possession of the audit reports provided by the auditors. KPMG explained in detail the financial position and performance of the company and the Group. The auditor also reported that there are no material weaknesses in the internal controlling of the accounting system or the risk early detection system. The Board and the auditors jointly reviewed and discussed the financial statements and KPMG answered all questions posed by the Audit Committee. The audits of the KUKA Aktiengesellschaft and KUKA Group annual financial statements for 2016 were thus fully comprehensible.

2016 financial statements adopted

After completing its own review of the financial statements for 2016 for KUKA Aktiengesellschaft and KUKA Group, and with full knowledge and consideration of the Audit Committee report, the auditors' reports and the explanations provided, the Supervisory Board raised no objections to the results and concurred with the auditors' findings at its meeting on March 21, 2017. In the opinion of the Supervisory Board, the auditors' reports comply with the legal requirements stipulated in sections 317 and 321 of the German Commercial Code (HGB).

The Supervisory Board is satisfied that the consolidated management report compiled for KUKA Aktiengesellschaft and KUKA Group is complete. The assessments made by the Executive Board in the management report are in agreement with its reports to the Supervisory Board, and the statements made in the consolidated management report are also in agreement with the Supervisory Board's own evaluations. At the conclusion of its review, the Supervisory Board found no cause to raise objections to the consolidated management report.

In its financial statements meeting on March 21, 2017, the Supervisory Board therefore approved KUKA Aktiengesellschaft's financial statements for fiscal 2016 as prepared by the Executive Board. The annual financial statements are thereby adopted.

The Supervisory Board also approved KUKA Aktiengesellschaft's consolidated financial statements and the Corporate governance report for the 2016 financial year as prepared by the Executive Board.

The Executive Board recommended that a dividend of €0.50 per entitled no-par-value share be paid from the balance sheet profit, and the remaining amount of €67,723,523.51 be carried forward. We reviewed this recommendation and endorsed it.

Thanks to the staff

2016 was once again a good year for KUKA in which the challenging budget targets for sales revenues and EBIT were almost achieved and the volume of orders received far surpassed the budget. As a result, the dividend can remain unchanged this year. This is attributable not just to the Executive Board, but to all KUKA Group employees.

The Supervisory Board would therefore like to express its special thanks to all staff of the KUKA companies for their impressive commitment. The employees worked hard to achieve a positive business performance in 2016 and can once again look at their company with pride. However, the Supervisory Board also extends its thanks to the members of the Executive Board, the CEOs of the Group companies and the employee representatives. All have served the welfare of the company, its customers and shareholders in an exemplary manner through their performance.

Augsburg, March 21, 2017
The Supervisory Board

Dr. Yanmin (Andy) Gu
Chairman

Corporate governance report

The Executive Board and Supervisory Board report below on corporate governance at KUKA in accordance with section 3.10 of the German Corporate Governance Code (“GCGC”).

Corporate governance refers to the entire system of managing and monitoring a company and group of companies. This includes in particular a company’s organization, business policy and guidelines as well as internal and external control and monitoring mechanisms. Good, responsible corporate governance is one of KUKA’s core principles. It creates transparency and confidence in KUKA among shareholders, customers and suppliers, the staff, the financial markets and the public.

Again for this reporting year, the Executive Board and Supervisory Board of KUKA Aktiengesellschaft have examined the requirements of the GCGC in detail in its current version as of May 5, 2015 and issue the following declaration of compliance:

Declarations of compliance

The declarations of compliance of the Executive Board and the Supervisory Board that have been issued for every financial year since 2002 are available to the public on the company’s website at www.kuka.com.

The identical declarations of the Executive Board (dated February 8, 2017) and the Supervisory Board (dated February 8, 2017) in accordance with section 161 para. 1 sentence 1 of the German Stock Corporation Act (AktG) and the GCGC read as follows:

“Since issuing the latest declarations of compliance of the Executive Board (January 18, 2016) and of the Supervisory Board (February 8, 2016), KUKA Aktiengesellschaft has complied with the recommendations of the Government Commission on the German Corporate Governance Code as on May 5, 2015, which were published in the *Bundesanzeiger* (German Federal Gazette) dated June 12, 2015, with the exception of the divergences mentioned in these declarations of compliance; subject to the following deviations it will continue to comply with these recommendations:

1. KUKA Aktiengesellschaft does not follow the recommendation for the Supervisory Board outlined in section 3.8 para. 3 of the GCGC. The Group D & O insurance policy does not provide for a deductible for members of the Supervisory Board. In KUKA Aktiengesellschaft’s view, Supervisory Board members do not require a deductible to ensure that they properly fulfill their monitoring role.
2. KUKA Aktiengesellschaft does not at present follow the recommendation for the Executive Board outlined in section 4.2.3 para. 2 sent. 6 of the GCGC. The reason is that one phantom share program that is still current, and forms part of the variable compensation of the Executive Board, is not restricted to certain maximum amounts. In addition to the maximum limits on the fixed remuneration and variable bonus, the employment contracts of the Executive Board members now also stipulate a maximum limit for phantom shares issued from 2015 onwards and payable from 2018 onwards. This is linked to a corresponding cap on the total remuneration. Retroactively capping total compensation (for overall salaries and variable payment components) would constitute a change in the terms of the contract, which cannot be unilaterally implemented by the Supervisory Board. Furthermore, it does not appear appropriate given the expected cooperation based on mutual trust between the Supervisory and Executive Boards (which is in fact expected by the GCGC).

KUKA Aktiengesellschaft adheres to almost all the other suggestions contained in the Code.”

The identical declarations of the Executive Board and Supervisory Board have been available on the company’s website at www.kuka.com since February 21, 2017.

Corporate and management structure

Since January 6, 2017, Midea Group Co., Ltd. (through a wholly-owned subsidiary) has held 94.55% of the shares in KUKA Aktiengesellschaft. KUKA Aktiengesellschaft and its subsidiaries and affiliates form a “subgroup” (hereinafter “KUKA Group”) within the Midea Group. KUKA Group consists of KUKA Aktiengesellschaft – the Group’s managing holding company – and the divisions Robotics, Systems and Swisslog. Systems engineering and the Solutions department of KUKA Industries are part of the Systems division. With the exception of the USA, the Group companies are – in most cases – 100% held by the management companies of the individual divisions directly or indirectly.

Similarities between the business divisions in terms of product portfolios, markets, customers, and geographic focus are identified, and intense efforts are made to further develop these similarities. This is an expression of the “One KUKA” approach. However, the divisions are responsible for their business and thus also for their earnings. Moreover, as in the past, project and risk managers monitor implementation of the established targets by focusing intensively on key indicators, as well as developing executive staff and maintaining brand strategy.

Executive Board and Supervisory Board

As a German stock corporation, the statutory rules impose on KUKA Aktiengesellschaft a dual management system comprising the Executive Board and Supervisory Board. The Executive Board is responsible for managing the company. The members of the Executive Board share this responsibility for company management. The Chairman of the Executive Board and Chief Executive Officer coordinates the work of the entire Board; he is responsible for representing and leading the Board in its cooperation with the Supervisory Board and its members. The Supervisory Board appoints, monitors and advises the Executive Board. The Chairman of the Supervisory Board coordinates the work of the Supervisory Board.

Responsible cooperation between the Executive Board and the Supervisory Board

The common goal of the Executive Board and Supervisory Board is to sustainably increase shareholder value. To this end, the Executive Board and Supervisory Board work closely together in the interest of the company. No former members of the Executive Board sit on the Supervisory Board. The Executive Board reports to the Supervisory Board regularly, in a timely manner, and comprehensively regarding all matters relevant to the company with respect to planning, business development, risk exposure, risk management and any corresponding action taken. The Executive Board also addresses any deviations in the business results from the established plans and targets and explains the causes of such deviations. The Executive Board and/or Chief Compliance Officer also reports to the Supervisory Board regarding corporate compliance. The Articles of Association and the Supervisory Board's rules of procedure contain provisions ensuring the right of the Supervisory Board to withhold its consent on significant transactions. Further information on cooperation between the Executive Board and the Supervisory Board can be found in the Supervisory Board report on pages 7 to 11.

In fiscal 2016, no consulting or other contracts for work or services existed between Supervisory Board members and the company.

We refer you to the report of the Supervisory Board (page 9 of the annual report) with regard to resolutions passed concerning business events during fiscal 2015 where conflicts of interest could have arisen for members of the Executive and Supervisory Boards.

Executive Board

The Executive Board of KUKA Aktiengesellschaft consists of two persons: the Chief Executive Officer (CEO) and the Chief Financial Officer (CFO). KUKA Aktiengesellschaft's Articles of Association expressly state that the Executive Board may consist of two persons (section 6 para. 1 of the Articles of Association).

In fiscal 2016, the responsibilities of the members of the Executive Board were assigned as follows:

Dr. Till Reuter, Chief Executive Officer (CEO), is responsible for (i) investor relations, (ii) strategic corporate development, (iii) public relations, (iv) senior Group executives, (v) internal audit, (vi) personnel and (vii) legal affairs/compliance. Dr. Reuter is also director of industrial relations at KUKA Aktiengesellschaft.

Mr. Peter Mohnen, Chief Financial Officer (CFO), is responsible for (i) finance and controlling, which includes the financial accounting, controlling, treasury and tax departments, (ii) risk management, (iii) IT, and (iv) facility management.

The Executive Board members normally convene at least every 14 days, and otherwise keep in constant close contact.

In accordance with the recommendations of the GCGC (section 4.1.5), the Executive Board takes diversity into consideration when filling managerial positions in the company and, in particular, aims for an appropriate consideration of women. The Executive Board sets targets for the proportion of women at the two management levels below the Board itself.

Executive Board compensation

Executive Board compensation is outlined in the Compensation report.

Supervisory Board

The Supervisory Board is composed in accordance with the German Act on Company Co-determination and consists of twelve members as per the Articles of Association; six members are elected by the shareholders and six by the employees.

The election of employee representatives to the Supervisory Board was held on April 18, 2013. The results of the vote were published in the Federal Gazette (Bundesanzeiger) on April 24, 2013. A new election of Supervisory Board shareholder representatives was held at the Annual General Meeting on June 5, 2013.

The term of office of the employee and shareholder representatives elected by the Annual General Meeting ends upon adjournment of the Annual General Meeting in 2018. This also applies to substitute members and other successors of employees and shareholders who are subsequently brought on to the Supervisory Board. This is because section 10 para. 4 sentence 1 of the Articles of Association stipulates that where a Supervisory Board member leaves office early, the term of office of the new Supervisory Board member runs only for the remaining term of office of the retiring member.

This specifically relates to two employee representatives who were appointed to the Supervisory Board by order of the Augsburg Local Court dated September 10, 2013 and June 1, 2016 respectively. In addition, five representatives of the shareholders were appointed by order of the Augsburg Local Court dated February 8, 2017 or by order of the Augsburg Local Court dated February 22, 2017.

The Supervisory Board established the following targets for its future makeup to address the requirement regarding diversity in section 5.4.1 of the GCGC, which are also to be taken into account when recommending candidates to the shareholders at the Annual General Meeting:

- (i) At least two Supervisory Board members shall have sector-specific experience.
- (ii) At least one Supervisory Board member shall have considerable professional experience abroad.
- (iii) At least two Supervisory Board members to be elected at the Annual General Meeting shall be independent in terms of section 5.4.2 of the GCGC and shall not be affected by conflicts of interest in terms of section 5.5.2 of the GCGC.
- (iv) Normally, Supervisory Board members shall be no younger than 35 and no older than 73 years of age at the time of their election.
- (v) A member of the Supervisory Board may carry out his or her mandate for up to a maximum of three consecutive periods in office, although this limit may be ignored in exceptional cases when it is in the company's interests to do so.
- (vi) In addition, the requirements of the German act to promote equal participation of women and men in management positions in the private and public sector (FührposGleichberG) of April 24, 2015 and the targets set by the full Supervisory Board concerning the number of women are to be observed.

Given the criteria for independence outlined under section 5.4.2 of the GCGC, it should be mentioned that Dr Hubert Lienhard, a member of the Supervisory Board during fiscal 2016, is CEO of Voith GmbH. Voith GmbH is the holding company of Voith Group and was allocated the KUKA shares held directly by J.M. Voith GmbH & Co. KG in fiscal 2016. It is also notable that Dr. Friedhelm Loh, a member of the Supervisory Board during fiscal 2016, is the sole shareholder of SWOCTEM GmbH and owner of the Friedhelm Loh Group. The KUKA shares held directly by SWOCTEM GmbH during fiscal 2016 were allocated to Dr. Loh. It must also be pointed out that companies in KUKA Group had business relations with firms in Voith Group as well as the Friedhelm Loh

group of companies during fiscal 2016. In the context of the takeover by Midea, Voith Group and SWOCTEM GmbH tendered their entire KUKA shares to Midea Group. Once the Midea takeover had been completed on January 6, 2017, Dr. Lienhard and Dr. Loh resigned from their Supervisory Board positions on January 10, 2017 and January 27, 2017 respectively.

To the extent that members of the Supervisory Board held or hold key positions with important business partners, transactions with them were subject to the standard terms and conditions for arm's length transactions.

All other members of the Supervisory Board fully complied with the independence criteria in the year under review.

The Supervisory Board formed six committees consisting of Supervisory Board members. These are:

- (i) the Mediation Committee as per section 27 para. 3 of the German Act on Company Co-determination (MitbestG),
- (ii) the Personnel Committee,
- (iii) the Audit Committee (section 5.3.2 GCGC),
- (iv) the Nomination Committee (section 5.3.3 GCGC),
- (v) the Strategy and Development Committee, and
- (vi) the Technology and Production Committee

In accordance with the provisions of the Corporate Governance Code, the Supervisory Board or the Audit Committee dealt with compliance issues, and the Executive Board reported to this committee accordingly.

It has been agreed with the independent auditor that the independent auditor will immediately report to the Supervisory Board any material findings or occurrences related to the Supervisory Board's work that arise in the course of auditing the financial statements. Finally, it was also agreed with the independent auditor that the independent auditor will inform the Supervisory Board and/or note in its audit report any finding of facts during the performance of the audit indicating that the declarations issued by the Executive Board and the Supervisory Board with respect to the Code are in any way incorrect (section 7.2.3 GCGC). As stipulated in the audit contract, the auditor reviewed the interim report as of June 30, 2016.

The Supervisory Board regularly reviews the efficiency of its activities (section 5.6 GCGC). It reviewed the "Best Practice Scenarios" presented to it in 2014. An analysis of the situation was then carried out in 2015. The final report, which attested to the high quality and effectiveness of the Supervisory Board's work, was presented to the Supervisory Board on October 11, 2016.

Supervisory Board compensation

Supervisory Board compensation is also outlined in the Compensation report.

Shareholdings

The current members of the Executive Board and Supervisory Board together hold less than 1% of the shares in circulation. The overall investment in KUKA shares held by the remaining members of the Executive and Supervisory Boards is also less than 1% of the company's shares in circulation. In the financial year, SWOCTEM GmbH held more than 1% of the KUKA shares; these were held by Dr. Loh as sole shareholder of SWOCTEM GmbH in fiscal 2016.

Members of the Executive and Supervisory Boards or related parties are obliged according to section 15a of the Securities Trading Act (WpHG) to disclose the purchase or sale of shares in KUKA Aktiengesellschaft, or financial instruments relating thereto, if the value of these transactions within one calendar year reaches or exceeds the sum of €5,000. The transactions by persons with management roles or their related parties reported to KUKA Aktiengesellschaft in fiscal 2016 were duly published and can be examined on the company website at www.kuka.com.

Corporate compliance

KUKA has always applied a high standard of ethical principles. Essential components are strict obedience to the law and value-oriented conduct. These form the basis of the Corporate Compliance Program adopted by the Executive Board in November 2007 and approved by the Supervisory Board in December 2007, which took effect throughout the Group on February 1, 2008. The key contents of the Corporate Compliance Program are contained in the Corporate Compliance Handbook, which comprises several compliance-related guidelines. The Corporate Compliance Handbook was revised and updated in fiscal 2010. It was again reviewed and updated in fiscal 2013 and the version now applicable is dated April 1, 2013. Various guidelines were adapted as of April 1, 2016 so as to adjust to the altered conditions. The handbook was also made more attractive and usable. This new version of the Compliance Handbook was issued to all employees worldwide. New employees receive the Compliance Handbook when they join the company.

The Executive Board passed a resolution making the CEO ultimately responsible for the Corporate Compliance Program. A Compliance Committee consisting of persons employed by the Group was established to steer, implement, monitor and develop the Corporate Compliance Program. In addition, compliance officers were established at the Group companies for the individual divisions and regions under the Compliance Committee. The compliance officers are intended to be the employees' direct and (first) point of contact for compliance-related issues. The position of external ombudsman has also been established.

For KUKA, regular training of its employees and continuous development of the existing compliance system are key to anchoring our value-based standards in the company and avoiding any violations of law. For example, since 2011, all KUKA employees have regularly participated in online compliance training based on an in-house e-learning program designed especially for this purpose. The e-learning program was progressively expanded to include the foreign Group companies.

In fiscal 2016, the "Corporate Compliance" e-learning program was revised. Participation in this revised version of the e-learning program was, and is, obligatory for all employees throughout the world.

An offline version is also being produced for issue to all employees worldwide who are unable to participate in the e-learning program as a result of technical restrictions. This ensures that all employees throughout the Group undergo compliance training and thereby acquire and regularly add to and deepen their knowledge of corporate compliance. This makes corporate compliance an active part of the corporate culture.

The company also held a series of seminars on selected topics.

Annual General Meeting

The 2017 Annual General Meeting will take place in Augsburg on May 31.

Each share is entitled to one vote. No-par-value shares have been issued and global certificates created. The shares are bearer shares. The Executive Board makes it easier for shareholders to exercise their voting rights at the Annual General Meeting by offering them the right to issue powers of attorney to proxies who are appointed by the company and bound by the instructions of the shareholder. The proxies appointed by the company are also available at the Annual General Meeting to the shareholders who are present. In addition, powers of attorney may be issued to financial institutions, shareholder associations or other third parties.

Accounting and annual audit

Since 2004, the annual financial statements of KUKA Group have been prepared in accordance with the International Accounting Standards (IAS) and the International Financial Reporting Standards (IFRS) as adopted by the European Union. An independent auditor elected at the Annual General Meeting audits the annual financial statements and the consolidated financial statements. At the recommendation of the Supervisory Board, shareholders at the 2016 Annual General Meeting chose KPMG AG Wirtschaftsprüfungsgesellschaft, Berlin, as auditor for the annual financial statements and Group auditor for fiscal 2016 as well as for a potential review of the mid-year report for fiscal 2016. The mid-year report for fiscal 2016 was reviewed by the auditor based on the aforementioned resolution.

In accordance with the provisions of the Corporate Governance Code, the Supervisory Board's Audit Committee reviewed the independence of the auditor, commissioned the auditor to carry out the audit, determined the key audit points and agreed on the fee.

Opportunity and risk management, controlling

Opportunity and risk management at KUKA Group is described in the risk report included in the annual report on pages 56 to 61. In accordance with legal requirements, the aim of risk management is early identification of any risk that could jeopardize the existence of KUKA Group and its operating companies as going concerns to enable measures to minimize, transfer or avoid risk to be taken. The risk strategy and risk policy is guided in particular by business risks, financial risks (including currency risks), and the specific risks of the divisions – in each case from a short, intermediate and long-term perspective. Controlling in particular is an essential tool for efficient risk management at KUKA Group.

KUKA further optimized opportunity and risk management in 2016. The Executive Board is tasked with adapting opportunity and risk management to changes in the business environment on an ongoing basis.

Financial publications

The company informs its shareholders, participants in the capital markets, and the media of its position and of significant business events, in particular by publishing quarterly financial reports, a mid-year financial report, and the annual report, holding a financial statements press conference on the annual financial statements and conducting the Annual General Meeting each year. In addition, it issues ad-hoc releases under section 15 of the German Securities Trading Act (WpHG), notices under section 15a of the WpHG (directors' dealings), and under section 26 of the WpHG (disclosure of notifications by shareholders and holders of certain financial instruments), holds conferences with analysts, meets with analysts and investors in Germany and abroad, and issues other press releases.

All information is published in both German and English and is also available on the company's website from the time of publication. All regular financial reporting dates are published in the company's financial calendar, which can be found on the back cover page of the annual report and on the website at www.kuka.com.

Declaration regarding Corporate Management

The corporate management declaration as per section 289a of the German Commercial Code (HGB) is posted on the company's website at www.kuka.com.

Compensation report

The compensation report summarizes the basic principles used to determine the compensation of the Executive and Supervisory Boards of KUKA Aktiengesellschaft and describes the structure and compensation of the members of the Executive and Supervisory Boards. The compensation report is an integral part of the combined management report.

Executive Board compensation

1. Compensation structure

KUKA Aktiengesellschaft's Executive Board compensation contains fixed and variable components. The latter consist of several variable compensation elements. The Executive Board compensation system thus conforms with section 87 of the German Stock Corporation Act (AktG) and the requirements of the GCGC regarding sustainable corporate performance. The variable components take into consideration both positive and negative business developments.

The fixed compensation consists of a base salary and payments in kind. The base salary is paid in twelve equal monthly installments. The payments in kind made to Executive Board members consist mainly of the non-cash benefits for the provision and use of a company vehicle.

One half of the variable compensation is based on the achievement of personal targets and the other half is dependent on the performance of KUKA Group's key indicators, EBIT and free cash flow. The associated details are agreed separately each year. The variable compensation component is capped (maximum target achievement of 200%) and achievement of the financial targets is linked to business performance over several years.

In addition, annual allocation volumes for participation in phantom share programs (hereinafter also referred to as the "programs") are stipulated for members of the Executive Board as a further variable compensation component designed to provide a long-term incentive for the period up to and including 2016. Phantom shares are virtual shares that grant the holder the right to a cash payment in the amount of the company's applicable share price. In contrast to stock options, the proceeds from phantom shares reflect not only the increase in share value, but also the full value of the stock. Moreover, a dividend equivalent that mirrors the actual dividend distributed on real KUKA shares is paid annually during the life of the plan for each virtual share held. There are no voting rights associated with phantom shares.

The programs each run for three calendar years. The allocation volume is either already contractually agreed or is set by the Supervisory Board before the respective three-year period commences. The allocation volume divided by a reference price for the KUKA share then results in a provisional number of phantom shares. The Supervisory Board has calculated the provisional number of phantom shares for the 2016–2018 program based on the average price of the KUKA share (opening price in XETRA trading on the Frankfurt Stock Exchange) between January 4, 2016 and March 7, 2016 (the last trading day prior to the Supervisory Board's financial review meeting). The relevant price thus determined for the KUKA share is €77.53.

The Supervisory Board also establishes an EVA (economic value added) for continuing operations (before taxes) at the beginning of the three-year performance period. The EVA is based on the operational planning for the three years of the program, which is geared towards the budget for the first financial year of the three-year period and the projections for the two subsequent financial years.

The cumulative EVA (actual EVA) for the three-year performance period is divided by the EVA for continuing operations in accordance with the operational planning for the three program years in order to determine a success factor. The success factor may fluctuate between 0 and 2.0. The final number of phantom shares depends on the success factor achieved, which is multiplied by the provisional number of phantom shares. The upper limit for the final number of phantom shares is capped at twice the number of provisional shares, which would constitute a success factor of 2.0. Payment is based on the final number of phantom shares at the final price of the KUKA share (average price of the KUKA share between January 2 of the year subsequent to the three reference years ("subsequent year") and the day prior to the financial review meeting of the Supervisory Board in the subsequent year).

In the event that an Executive Board member's contract is terminated – regardless of which party initiates the termination – all phantom shares allocated to that member expire. However, this does not apply if an Executive Board member uses their right to step down from their place on the Board owing to a change of control at the company. In this case, a proportionate payment is made in accordance with the terms and conditions of the phantom share program.

The relevant Executive Board member is obliged to purchase a certain number of KUKA shares from the gross proceeds paid out on the basis of the programs, in order to build up a holding volume of 50% of the annual base remuneration (fixed annual remuneration) in the year of allocation. Until the holding volume has been built up, 25% of the gross amount paid out for the relevant year must be spent on purchasing KUKA shares. The purchase amount is retained from the net proceeds. The obligation ends with the participant's departure from KUKA Group. In the context of the Midea takeover bid, the Executive Board was relieved of its holding obligation by the Supervisory Board on June 25, 2016 in relation to the shares currently held.

Unless fixed benefits have been contractually granted, the Supervisory Board decides each year on the amount of the Executive Board's share-based payments. The objective of the phantom share program and its configuration is to ensure that every member of KUKA's Executive Board is also a shareholder. The program promotes share ownership among members of KUKA's Executive Board and thereby ties the interests of these governing body members more closely to the interests of shareholders. The profit targets and comparative parameters may not be changed retroactively.

The payment amounts (to be paid out in 2018 and 2019 respectively) for the 2015 – 2017 and 2016 – 2018 phantom share programs were limited for the first time to an amount equal to three times the allocation volume. Future phantom share programs will also be limited correspondingly, so that the Executive Board compensation as of 2018 is therefore limited by the accumulation of caps on individual items (fixed annual salary, variable bonuses and payments from a phantom share program).

The amounts paid out from the 2014 – 2016 phantom share program still running are not yet subject to a limit. For this reason the total compensation of the Executive Board is currently not limited (the Executive and Supervisory Boards reported on the resulting divergence from the recommendation as per section 4.2.3 para. 2 sentence 6 of the GCGC in their joint declarations of compliance).

The employment contracts of Executive Board members contain "severance payment caps". This means that a restriction is agreed upon in the event of the employment contracts being terminated prematurely without good cause in relation to potential severance payments. The regulations specifically stipulate that the settlement shall not exceed the compensation value for the remaining term of the employment contract, restricted to twice the annual compensation.

The employment contracts of Executive Board members additionally contain "change-of-control" clauses. In the event of a change in control within the company (sections 29 para. 2 and 30 WpÜG), the Executive Board members are entitled to terminate the employment contract within three months of the change in control occurring, subject to a notice period of three months. In the event of a termination, the Executive Board members will be entitled to a severance payment, which is measured against the compensation due for the remainder of their contract, but is restricted to twice the annual compensation at most.

No loans were granted to Executive Board members during the year under review.

2. Compensation for 2016

Executive Board compensation for fiscal 2016 is disclosed for each individual member in accordance with the standardized reference tables recommended in the GCGC. Following this, the compensation is disclosed separately according to "granted benefits" (table 1) and "actual inflow" (table 2). The target values (payment for 100% target achievement) and the minimum and maximum values achieved are also disclosed for the benefits.

Payments granted to members of the Executive Board – taking into account the actual inflow – totaled €5,561,000 in fiscal 2016.

Table 1: Executive Board compensation for 2016 – Overview of benefits

in € thousands	Dr. Till Reuter CEO				Peter Mohnen CFO			
	FY 2015	FY 2016	FY 2016 (min)	FY 2016 (max)	FY 2015	FY 2016	FY 2016 (min)	FY 2016 (max)
Fixed compensation	600	600	600	600	425	425	425	425
Fringe benefits ¹	25	25	25	25	31	31	31	31
Total	625	625	625	625	456	456	456	456
One-year variable compensation ²								
Bonus	350	350	0	700	225	225	0	450
Multi-year variable compensation								
Company targets bonus for 2015 ³	350	–	–	–	225	–	–	–
Company targets bonus for 2016 ³	–	350	0	700	–	225	0	450
Phantom share program 2015–2017 ⁴	443	–	–	–	277	–	–	–
Phantom share program 2016–2018 ⁴	–	452	0	1,200	–	283	0	750
Total	1,768	1,777	625	3,225	1,183	1,189	456	2,106
Pension cost	0	0	0	0	0	0	0	0
Total compensation	1,768	1,777	625	3,225	1,183	1,189	456	2,106

¹ The fringe benefits include expenses and non-cash benefits for the provision of company cars and insurance allowances. The premium for D&O insurance is included in the fringe benefits because, unlike the accident insurance, it cannot be allocated individually, as the company pays a lump-sum premium for the insured group of persons which goes beyond the members of the Executive Board.

² Proportion of variable bonus for achieving personal targets (with 100% target achievement) in the specified fiscal year (possible target achievement from 0 to 200%).

³ Deferred percentage (50%) of variable bonus (with 100% target achievement) for the specified fiscal year.

⁴ Allocation value on the date the phantom share program was established by the Supervisory Board. The price of the KUKA share on this date is multiplied by the provisional number of phantom shares. For the phantom share program 2015–2017 the share price was €72.14 at this time (Xetra closing price on March 24, 2015). For the phantom share program 2016–2018 the share price was €87.67 (Xetra closing price on March 8, 2016)

Table 2: Executive Board compensation for 2016 – Overview of inflow

in € thousands	Dr. Till Reuter CEO		Peter Mohnen CFO	
	FY 2015	FY 2016	FY 2015	FY 2016
Fixed compensation	600	600	425	425
Fringe benefits ¹	25	25	31	31
Other compensation ²	131	156	0	0
Total	756	781	456	456
One-year variable compensation ³				
Bonus	640	542	408	439
Multi-year variable compensation				
Company targets bonus for 2013 ⁴	610	–	400	–
Company targets bonus for 2014 ⁴	–	694	–	421
Phantom share program 2012 – 2014 ⁵	3,082	–	1,541	–
Phantom share program 2013 – 2015 ⁵	–	1,406	–	804
Other share-based compensation ⁶	11	11	7	7
Total	5,099	3,434	2,812	2,127
Pension cost	0	0	0	0
Total compensation	5,099	3,434	2,812	2,127

¹ The fringe benefits include expenses and non-cash benefits for the provision of company cars and insurance allowances. The premium for D & O insurance is included in the fringe benefits because, unlike the accident insurance, it cannot be allocated individually, as the company pays a lump-sum premium for the insured group of persons which goes beyond the members of the Executive Board.

² Dr. Reuter received compensation of CHF 145,000 (2015 pro rata amount) in fiscal year 2015 as President of the Administrative Board of Swisslog Holding AG (Buchs/Switzerland). In fiscal year 2016, he received remuneration of CHF 170,000 for this activity. This results in an amount of €131,555 for 2015 at an exchange rate of €1 = CHF 1.1022 (average rate in 2015) and an amount of €155,935 for 2016 at an exchange rate of €1 = CHF 1.0902 (average rate in 2016). These amounts are taken into account in the presentation of the inflow. The employment contracts with the Executive Board members stipulate that compensation granted on the basis of a Supervisory Board, Advisory Board or Administrative Board mandate in a company affiliated to KUKA Aktiengesellschaft shall be offset against the bonus payable to the member of the Executive Board. The compensation paid to Dr. Reuter by Swisslog Holding AG in fiscal year 2016 amounting to €155,935 therefore counts towards his bonus for fiscal year 2016 (to be disbursed in April 2017).

³ Variable compensation paid out during the fiscal year.

⁴ Deferred proportion of variable compensation from the 2013 and 2014 fiscal years, which was paid out in the 2015 and 2016 fiscal years.

⁵ Phantom share program 2012 – 2014 payout at a final price of €65.10 (average KUKA share price (opening price in XETRA trading on the Frankfurt Stock Exchange) between January 2, 2015 and March 23, 2015). Phantom share program 2013 – 2015 payout at a final price of €77.53 (average KUKA share price (opening price in Xetra trading on the Frankfurt Stock Exchange) between January 4, 2016 and March 7, 2016). The amounts paid out each represent the gross proceeds. The net payout results from the gross proceeds less taxes and social contributions, other statutory levies and the purchase price for actual KUKA shares.

⁶ Payout of dividend equivalents in 2015 of €0.40 per provisional share from the phantom share programs 2013 – 2015, 2014 – 2016, 2015 – 2017 and in 2016 of €0.50 per provisional share from the phantom share programs 2014 – 2016, 2015 – 2017, 2016 – 2018.

Provisions, which took the total expected expense from the phantom share programs into account, were recognized as of December 31, 2016 for all phantom share programs in effect on that date and that have yet to be paid out (i.e. the 2014–2016, 2015–2017 and 2016–2018 programs).

Apart from a few exceptions, former Executive Board members whose terms of office ended no later than 2008 were granted company pension benefits that included old age, professional and employment disability, widows' and orphans' pensions. The total sum for the provisions recognized in 2014 for current pensions and expected pension benefits for this group of persons totaled €10,041,000 (German Commercial Code) (2015: €10,018,000).

Supervisory Board compensation

1. Compensation structure

Based on a resolution at the company's Annual General Meeting on January 1, 2006, the Articles of Association were amended to include fixed compensation for members of the Supervisory Board.

In addition to reimbursement of expenses, each member of the Supervisory Board is paid a fixed amount of €30,000, payable at the end of the fiscal year.

The chair of the Supervisory Board is paid four times that amount, and the deputy chair receives double the compensation. Supervisory Board members receive additional compensation of €30,000 for chairing an Annual General Meeting, provided this task is not fulfilled by the chair of the Supervisory Board, and for membership in any committee that is not of an interim nature, but at most for three committee memberships. A committee chairman also receives half the annual remuneration even if he chairs more than one committee. This does not apply to the committee pursuant to section 27, para. 3 of the German Act on Company Co-determination.

In addition, for each Supervisory Board meeting (including meetings of Supervisory Board committees), each Supervisory Board member is reimbursed for appropriate expenses incurred or is given a lump-sum payment of €450 per meeting (plus the applicable value added tax). The employee representatives on the Supervisory Board who are employed by KUKA Aktiengesellschaft or a KUKA Group company are still entitled to their regular salaries based on their employment contracts.

2. Compensation for 2015 and 2016

The following table compares the compensation paid to members of the Supervisory Board in the 2015 and 2016 financial years:

Table 3: Supervisory Board compensation in 2016

in € thousands	Payment in 2016 for 2015	Payment in 2017 for 2016
Bernd Minning Chairman of the Supervisory Board and Chairman of the Personnel Committee, Strategy and Development Committee, Mediation Committee and Nomination Committee	165	198
Michael Leppek¹ Deputy Chairman of the Supervisory Board	90	123
Prof. Dr. Dirk Abel	60	60
Wilfried Eberhardt	30	30
Siegfried Greulich¹	60	93
Thomas Knabel¹ (until May 27, 2016)	60	24
Armin Kolb¹	60	76
Dr. Constanze Kurz¹ (from June 1, 2016)	0	35
Carola Leitmeir¹	60	76
Dr. Hubert Lienhard (from June 10, 2015)	34	60
Dr. Friedhelm Loh (from June 10, 2015)	34	60
Prof. Dr. Uwe Loos Chairman of the Technology and Production Committee	75	91
Hans Ziegler (from June 10, 2015 to December 1, 2016)	42	83

¹ The employee representatives on the Supervisory Board, who are also members of IG Metall, have declared that they shall pay their Supervisory Board compensation to the Hans Böckler foundation in line with the guidelines of the Federation of German Trade Unions.

KUKA and the capital market

KUKA share

In the year under review, the price of the KUKA share (WKN: 620440, ISIN: DE0006204407) rose by 6.6% from €83.05 to €88.55. The share developed positively until the takeover bid was announced by Midea due to the good market prospects for robot-based automation and KUKA's positive key financial indicators. From May onwards, KUKA share performance was influenced substantially by the takeover bid. The share price rose to €114.40 on May 18, 2016, reaching a new all-time high. The share remained at a high level until the end of August and settled at €88.55 by the end of the year.

As a result of Midea's takeover bid, tendered KUKA shares were issued with the designation "KUKA shares tendered for sale" (WKN: A2BPXK, ISIN: DE000A2BPXK1). This share developed positively from the day the first price was determined until the end of the year. The share price rose from €104.50 to €114.85, a gain of 9.9%. The last price was determined on January 2, 2017 before transfer to Midea upon completion of the takeover. After the successful conclusion of the takeover, the "KUKA

share tendered for sale" was converted back into a "normal" KUKA share (WKN: 620440, ISIN: DE0006204407). The total number of issued KUKA shares did not change during the entire term of the takeover bid.

The development of equity markets in Germany was impacted by the subdued economic outlook in China, the sharp drop in oil prices and the EU referendum in the United Kingdom as well as the election of the new US President. The MDAX, on which the 50 medium-sized stocks in Germany are listed, improved by 6.8% in 2016 from 20,775 points (year-end 2015) to 22,188 points (year-end 2016). KUKA was a member of the MDAX until August 10, 2016. KUKA had to leave the index after this to comply with the rules of Deutsche Börse AG due to the reduced free float of 5.4% and the share has since been traded over the counter. As before, the KUKA share is included in the HDAX, CDAX and Prime All Share indices.

KUKA developed very positively and outperformed all but two of the companies in its peer group (companies that have a similar business base and are of a comparable size). The share prices within the peer group developed in a range between -21.2% and +11.6%.

		2012	2013	2014	2015	2016
Weighted average number of shares outstanding	millions of shares	33.92	33.92	34.17	36.14	39.60
Earnings per share	€	1.64	1.72	1.99	2.39	2.19
Dividend per share	€	0.20	0.30	0.40	0.50	0.50 ¹
High for the year (closing price)	€	29.02	38.50	62.51	85.59	110.00
Low for the year (closing price)	€	14.68	26.40	33.85	56.86	68.10
Closing price for the year (closing price)	€	27.67	34.05	58.98	83.05	88.55
Change compared to prior year	%	95.7	23.1	73.2	41.0	6.6
Market capitalization (Dec. 31)	€ millions	938	1,154	2,106	3,198	3,506
Average daily volume	No. of shares	120,000	144,000	157,000	156,000	77,322

¹ Subject to approval by shareholders at the Annual General Meeting on May 31, 2017

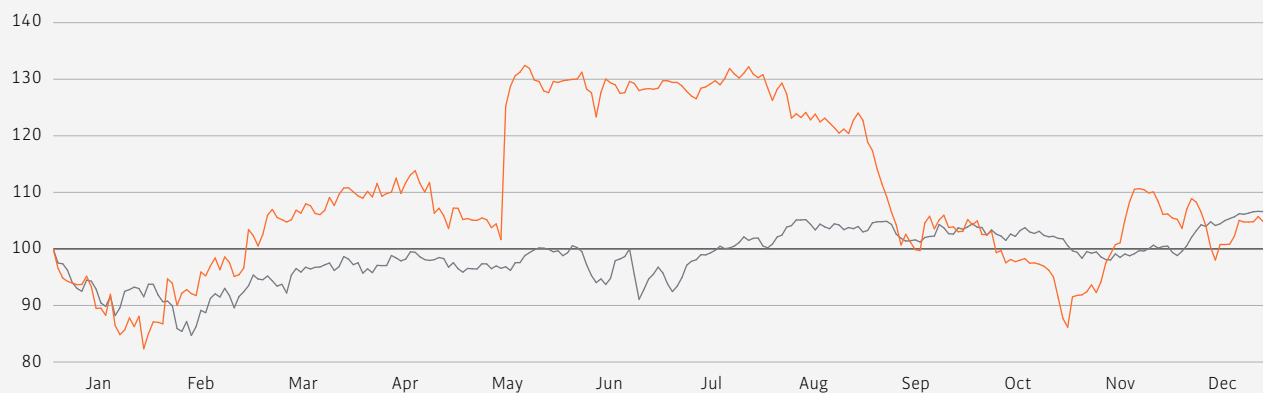
MECCA/Midea takeover bid for KUKA

On May 18, 2016, MECCA International (BVI) Limited, a wholly-owned subsidiary of Midea Group Co., Ltd. announced a takeover bid in the form of a cash offer of €115.00 per KUKA share to all KUKA shareholders. The bid was submitted on June 16, 2016.

On June 28, 2016, KUKA gave notice that an investment agreement had been signed with Midea which contractually binds Midea to extensive assurances up to the end of 2023. These assurances include location and job guarantees, commitment to KUKA's existing strategy and Executive Board independence, agreements to protect business partner data and the undertaking not to pursue any direct control agreement or delisting. After careful examination as prescribed by section 27 of

the German Securities Acquisition and Takeover Act (WpÜG), the Executive Board and Supervisory Board of KUKA Aktiengesellschaft issued a reasoned opinion on June 28, 2016. The offer is suited to the company, its shareholders, customers and employees and it was therefore recommended that the shareholders accept the offer. When the bid documents were published, the four-week acceptance period began, during which KUKA shareholders were able to consider the Midea offer. This was followed by a grace period from July 21 to August 3, 2016. On August 8, 2016, MECCA/Midea announced that 94.55% of KUKA shareholders had accepted the offer. The takeover was subject to anti-trust and foreign economic approvals. All completion conditions were met for the takeover bid by December 30, 2016. The takeover bid was concluded in the first half of January 2017.

KUKA share price performance
January 1 – December 31, 2016¹



● KUKA ● MDAQ

¹ December 30, 2015 = 100, stock performance indexed, Xetra stock price

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Group basis

Group structure and business activities

In the year under review, KUKA Group consisted of KUKA Aktiengesellschaft and the Robotics, Systems and Swisslog divisions. KUKA Aktiengesellschaft headquartered in Augsburg is the Group's holding company and is responsible for managing corporate activities within the group of companies. The management of the individual divisions coordinates the operational business activities in the respective segments. The divisions operate globally and are supported by their regional subsidiaries in both their sales efforts and their assembly and field service work.

KUKA is one of the world's leading specialists in automation. Its aim is to support its customers in the overall optimization of their value added by providing comprehensive automation and digitization know-how. As a global technology corporation, KUKA offers its customers everything they need from a single source: from the core component – the robot – to cells, turnkey systems and networking. Through its advanced automation solutions KUKA contributes to increased efficiency and improved product quality for its customers. Industrie 4.0 is bringing digital, networked production, flexible manufacturing concepts and new business models to the fore. With its decades of experience in automation, in-depth process know-how and cloud-based solutions, KUKA ensures its customers are well ahead of the competition.

The Robotics division develops, manufactures and distributes the core component for automation – the robot. In addition to the manufacture of industrial and service robots, it also focuses on robot control and software along with the analysis and use of big data in production operations. Robotics additionally offers its customers a wide range of services.

The core competence of the Systems division (with KUKA Industries) lies in customized solutions for the automation of manufacturing processes. Systems plans and implements automated systems for its customers, and upgrades existing systems to increase sustainability and efficiency. It focuses on large-scale automotive and production-oriented industries. KUKA bundles this expertise of cell business and in-depth process know-how within the KUKA Industries business unit, which forms part of the Systems division.

The Swisslog division has two units: Healthcare Solutions implements automation solutions for forward-looking hospitals in order to sustainably increase efficiency and improve patient care. In the logistics segment the Warehouse and Distribution Solutions unit supplies automated, robot-based and data-controlled intralogistics systems, covering the spectrum from planning to implementation and service. By combining Swisslog logistics solutions with the robotic automation solutions of the other divisions of the Group, KUKA as an automation powerhouse offers new possibilities of flexible automation along the entire value chain.

Robotics division

The core component for automating production processes is provided by the Robotics division: industrial robots together with the controller and software. The broad product portfolio covers payload ranges from 3 to 1,300 kg. This enables KUKA to meet the various requirements of its customers optimally. A greater part of robot models are developed and assembled in Augsburg. The control cabinets are produced in two Hungarian plants, in Taksony and Füzesgyarmat. For the Asian market, KUKA produces robots and control cabinets at its Chinese plant in Shanghai. The KUKA Colleges provide technical training courses for customers at more than 30 sites worldwide.

KUKA Robotics is continuously expanding its range of products so as to offer customers from all kinds of sectors the solutions that are appropriate for them and to allow even small and medium enterprises to use robots economically. Research and development has an important role to play here. KUKA's new products and technologies open up additional markets and create new applications for robot-based automation.

KUKA has smoothed the way for human-robot collaboration with the development of the sensitive lightweight robot LBR iiwa. Intelligent safety technologies enable robots to assist human workers in their immediate vicinity. The controller has modular and open interfaces so that robots can easily be integrated into existing, networked production systems. Autonomously navigating robots like the KMR iiwa are another means of increasing the flexibility and efficiency of production.

KUKA Connect, a cloud-based platform, collects and processes the complete information from all networked production devices on a central basis. This knowledge allows users to register error messages in real time, to monitor maintenance activities and condition data, and to produce comprehensive event logs. That minimizes downtimes and service times, therefore saving costs.

Systems division

The Systems division offers customers complete tailor-made solutions for automating manufacturing processes. It plans, designs and builds automated production systems. The range covers the entire value chain of a system: from individual system components, tools and fixtures to automated production cells and even complete turnkey systems. The division's expertise lies in automating individual production processes such as welding and joining, processing various materials and integrating different production stages to form a fully automatic system.

The Systems division supplies large-scale automated lines principally to the automotive industry for body-in-white production as well as assembling engines and transmissions. Markets in Germany and elsewhere in Europe are served from Augsburg, while the Greater Detroit area in the USA is responsible for the North/South America region and Shanghai in China handles the Asian market. Automated assembly lines and test rigs for engines and transmissions are designed at and supplied from the Systems sites in Bremen, Greater Detroit/USA and Shanghai/China. Systems also operates a production plant for the entire body of Chrysler's Jeep Wrangler (KTPO) in Toledo/USA. As well as the automotive industry, more and more other sectors are coming to rely on the expertise that Systems has acquired over many years in the automation business.

KUKA bundles the expertise of cell business and in-depth process know-how within the KUKA Industries business unit, which forms part of the Systems division. At its sites worldwide, KUKA Industries offers its customers innovative joining and machining technologies, laser welding and special welding processes, as well as all the process steps in the foundry sector and in photovoltaic and battery production. KUKA Industries is an expert in process- and customer-oriented cells and solutions, from the initial idea to production support, for customers in the automotive, consumer goods, energy & storage and electronics industries as well as many other sectors.

Swisslog division

With its Swisslog division, KUKA is opening up the growth markets of e-commerce/warehouse logistics and healthcare. Based in Buchs/Aarau, Switzerland, Swisslog serves customers in over 50 countries. From planning and design, through to implementation and service over the whole life cycle of the solutions, Swisslog provides integrated systems and services from a single source.

The Healthcare Solutions (HCS) unit provides automation solutions for forward-looking hospitals in order to increase efficiency in a sustained manner and improve patient care. The solutions optimize work procedures in the areas of material transport and medication management. This allows hospital staff more time for looking after their patients. At the same time the probability of errors in medication is reduced.

The Warehouse and Distribution Solutions (WDS) unit implements automation solutions for forward-looking warehouses and distribution centers. With automated intralogistics solutions, Swisslog optimizes warehouse logistics and assists companies to achieve maximum throughput at minimum cost, to handle a large number of stock-keeping units efficiently and to fulfill supply requirements with a high level of accuracy. As a general contractor, WDS offers complete turnkey solutions, employing data-controlled and robot-based automation in particular. Swisslog offers an Industrie 4.0 portfolio comprising the latest intralogistics technologies, innovative software and a variety of matching services covering all aspects of warehouse operation.

Markets and competitive positions

KUKA operates in a highly dynamic, innovation-driven market environment, which is continuously changing and redefining itself under the influence of digitization.

The automotive sector continues to represent an important factor in KUKA Group's success and accounted for about 50% of total sales revenues during the year under review. This is the market in which KUKA has grown over the past 40 years and become established as a specialist for robot-based automation solutions. KUKA is a market leader in the automotive industry. There are also many opportunities to expand business in sectors outside the automotive industry, i. e. in general industry. For several years the Group has successfully expanded its business in general industry so as to benefit from the growth potential and achieve a greater degree of differentiation in its sales revenues. General industry and the automotive industry contributed about equally to overall sales revenues during the year under review. In 2016, KUKA continued to focus on the strategic market segments of automotive, electronics, consumer goods, metal industry, healthcare, e-commerce and logistics.

KUKA occupies a strong position in the European market. The company also sees growth potential in the expansion of global sites, particularly those in the high-growth countries of Asia. The primary focus here is on the potential of the Chinese market.

KUKA is broadening its presence energetically in China, the biggest growth market for automation. The robots are shipped to the Asian market from the Shanghai production location. According to a forecast from the international robotics association IFR, sales of robot units in China are predicted to increase by an average of 20% per year between 2017 and 2019.

Through intensive research and development, Robotics brings out technologies and products which create new possibilities for the use of robots. Ever more sectors are benefiting from the automation solutions, for example the consumer goods and electronics industries. KUKA Robotics is one of the leading robot manufacturers in the world, and is regarded as the market leader for industrial robotics in Europe.

Systems is a top supplier for body-in-white construction activities in the automotive industry and is market leader in North America. Systems is also expanding into sectors outside the automotive industry. The cell business of KUKA Industries in the Systems division focuses predominantly on the automotive, consumer goods, energy & storage and electronics sectors.

Swisslog supplies customers in more than 50 countries. The Health-care Solutions division is the market leader in the area of automated materials transport in hospitals (pneumatic tube solutions, automated guided vehicles) and an innovative niche supplier in the automated management of medication (storage, packaging and sorting of drugs). The Warehouse and Distribution Solutions division operates throughout the world and is a leading supplier of intralogistics solutions. As a general contractor, WDS offers complete turnkey solutions, employing data-controlled and robot-based automation.

Corporate strategy

KUKA operates in a highly dynamic, innovation-driven market environment, which is continuously changing and redefining itself under the influence of digitization. Robot-based automation represents a global trend that is experiencing a tailwind, particularly in Asia.

Industrie 4.0, the digital networking of automated production, is gaining ever more importance. Its aim is to support its customers in the overall optimization of their value added by providing comprehensive automation and digitization know-how. KUKA is therefore supplementing its automation expertise with know-how in cloud-based networking of machines and systems as well as data analytics. For this reason, a team is researching cloud-based big data applications at the US development site in Austin, Texas. An important aspect in the course of digitization is working on new business models. These will fundamentally and permanently transform not only production in the future, but also the value creation process as a whole. A central Industrie 4.0 team is intensively addressing the potential of digitization for the entire KUKA Group.

The “KUKA 2020” program comprising several projects supports the implementation of strategy internally and also pursues the aim of making KUKA’s own corporate structures and employees fit for digitization. For example, the company now features a standard IT architecture following the global harmonization of structures and processes.

KUKA 2020 is also enhancing the corporate culture. Employees communicate via the digital social business platform “Chatter” across all divisions and national borders, and are networked in work groups. This promotes global collaboration.

A new website allows customers and visitors to enter the digital world of KUKA. Via the KUKA marketplace developed during the year under review, customers set out on their own “customer journey”. They are able to become part of the digital KUKA world and procure products and services from KUKA through the Internet. The KUKA marketplace will be rolled out in 2017.

A further strategic focal issue is to safeguard and expand KUKA’s leading position in terms of innovation and technology.

1. Expansion of leadership in technology and innovation

KUKA stands for innovations in automation and is a driver of Industrie 4.0. Together with customers and partners, KUKA is developing smart products and solutions for the intelligent factory of the future. The combination of Swisslog logistics solutions with robot-based automation solutions from the other business divisions is of central significance for the Group.

With a new generation of robots that are sensitive and can work hand in hand with humans, KUKA is setting new trends in robotics. Enhanced by mobility and autonomous navigation, robots are being transformed into flexible production assistants. The trend is also towards robots that are simple to program, flexible to deploy and easily integrated and networked. In KUKA Connect, KUKA is placing an innovative product on the market which enables customers from a vast range of sectors to network machines and systems in the cloud digitally. With the help of data-based analysis, customers can track their energy consumption or the maintenance intervals in their own production facilities, for example. This opens up access to new business models for KUKA. With its start-up partner, connyun, KUKA is planning a platform for partners with the aim of creating an ecosystem for customers and their production environment.

2. Diversification of business operations in new markets and regions

KUKA is a market leader in the automotive industry. There are also growth opportunities in markets outside this sector, i.e. in general industry.

The focus markets addressed by KUKA are especially important because their growth and profit potential is high. The degree of automation in these sectors is still relatively low, particularly as compared with the automotive industry. KUKA’s aim is to support its customers in the holistic optimization of their value creation processes by providing automation and digitization expertise. This enables processes to be designed for greater efficiency and flexibility. Additionally, it will optimize resource and energy consumption while raising quality. With various acquisitions and their integration, KUKA has selectively expanded its know-how, making use of it to strengthen its own market position.

In 2016, KUKA further intensified its focus on the following strategic market segments:

Automotive

Automotive customers have always been of great importance for KUKA. They are very important drivers of technology and innovation. The German premium brands in particular play a significant role here. The automotive segment currently accounts for about 50% of sales revenues. KUKA will continue to grow around the world with its automotive customers and support them as a partner in automation and digitization.

Aerospace

KUKA is an all-round supplier for the aerospace sector and covers the entire manufacturing process for customers, for example the riveting of components. KUKA has continuously built up expertise here over many years. After the sale of the aerospace division in the USA, which took place in the context of the Midea takeover, KUKA is now concentrating strongly on Europe and Asia. The goal here is to utilize our existing know-how to push ahead with growth in Europe and Asia.

Electronics

The 3C market is one of the key markets of the future. The degree of automation is still low, but is rising rapidly. Products for the electronics market are chiefly manufactured manually in Asia, KUKA's global focus market. What is required here are flexible, scalable solutions for the manufacture of high-tech products. After all, customers in this segment are faced with challenges such as rising labor costs, shorter life cycles and higher unit quantities of the products.

Consumer Goods

For many years, robots have been successfully and efficiently assisting in the production of fast-moving consumer goods (FMCG), i.e. everyday products. Nowadays, they are used predominantly in the food and drinks industry, but also in shoe and textile production as well as in the manufacture of cosmetics or pharmaceuticals. With the increase of individualization, value creation by the consumer goods industry will undergo sharp change. Consumers can design products on the Internet to suit their requirements and have them delivered by express shipment. Flexible, networked production and innovative logistics solutions have an important role to play here. The new generation of robots that are sensitive and mobile, and thus are able to work hand in hand with humans, are opening up new applications along the process chain. Digitization will further strengthen this trend.

Metal Industry

KUKA can draw on years of experience in the metalworking industry. In arc welding or laser welding, but also in the foundry industry, customers benefit from KUKA's expertise.

Healthcare

Healthcare is currently facing a major challenge. Demographic changes and a shortfall in healthcare personnel are making modern technologies indispensable in the provision of all-round care for the future. Automation solutions ensure greater efficiency in hospitals and improve work procedures. The workload on nursing staff is thus reduced, enabling them to concentrate more on patient care in the future.

Solutions from Swisslog help modern hospitals and healthcare facilities to optimize work procedures and costs, for example in the areas of efficient material transport and management of medicines, thereby increasing patient wellbeing. KUKA also has a long history of products for the healthcare sector. Mobile and sensitive robots open up entirely new possibilities for assisting patients in the field of healthcare.

e-commerce

Electronic commerce results in large quantities of varied goods being sent to consumers via goods distribution centers – quantities which in the long term can only be catered for through automation. The e-commerce segment is therefore an important sales market for smart logistics concepts combined with innovative, robot-based automation.

KUKA has a strong position on the European market. The company sees growth potential in the expansion of global sites, particularly those in the high-growth regions of Asia and North America. The primary focus here is on the potential of the Chinese market. According to a forecast of the International Federation of Robotics (IFR), the Chinese market is expected to undergo strong growth in the coming years. Sales of robot units in China are predicted to increase by an average of 20% per year between 2017 and 2019.

China is already the largest growth market worldwide. This is an opportunity which KUKA has been able to grasp during the year under review. KUKA has been represented for many years by several subsidiaries in Asia and has greatly expanded its presence on the Chinese market in recent years. The headquarters for its Asian business are in Shanghai, where a hub bundling various functions was established in 2016.

Midea, the new majority shareholder, supports this strategic approach and is smoothing the way.

3. Continuous establishment of sustainable and efficient cost structures

In order to support profitable growth and thereby secure long-term competitiveness, various measures are being implemented in the field of operational excellence.

Power ON is a key initiative which, over the coming years, will optimize and harmonize further procedures, the organizational structure and IT systems and tools throughout the Group. During the year under review, for example, uniform IT systems were introduced in several pilot companies throughout the Group. Alongside a Customer Relationship Management (CRM) system and a global Human Resource Management system, in particular a uniform Group-wide Enterprise Resource Planning (ERP) system including a modern cloud-based procurement platform has been implemented. The program covers KUKA's worldwide operations and encompasses all divisions and core functions.

In addition to this, KUKA is establishing business process management throughout the entire organization as part of the Power ON program. Initially, process coordinators have been nominated at the global level for the respective core, management and support processes. A world-wide hub concept has also been developed and implemented in order to bundle the administrative functions of the individual companies in shared service centers. The hub in China was established during the year under review with the goal of modernizing procedures in Asia, increasing efficiency and supporting growth.

Financial control system and objectives

The Group's strategy is aimed at sustainably increasing the enterprise value. Various key financial performance indicators are used as part of Group management and to monitor the business performance and position of the Group. KUKA Group's financial targets are key performance indicators (KPIs) that track the enterprise value of the company.

The most important KPIs for KUKA Group are revenues, EBIT, ROCE and free cash flow. The development of these variables is presented in the "Business performance" section starting on page 35 and under "Financial position and performance" from page 37. Earnings before interest and taxes (EBIT) are compared to sales revenues to determine return on sales, which results in the EBIT margin. EBIT is compared to average capital employed to determine the return on capital employed, or ROCE. EBIT and ROCE are determined for KUKA Group and the divisions. Free cash flow – cash flow from operating and investment activities less capital spending – shows whether the investments can be funded from cash flow, and how much cash is available to pay a dividend and service debt.

These key indicators are components of the target and remuneration system in place at KUKA Group and are published. This ensures that all employees share the same goals. See the glossary that begins on page 130 for definitions of key performance indicators.

Medium term, i.e. between three and five years, the EBIT target margin is at least 12% for the Robotics division and at least 6% for Systems. At Swisslog the target EBIT margin (before purchase price allocation) is to be increased to at least 5%. Currently, the largest share of revenues of over 50% is generated in Europe. KUKA plans to further expand activities in Asia and expects about 30% of revenues to be generated here in the medium term. The ability to reach these targets is largely dependent on the expertise and dedication of our employees. This is why it is essential for KUKA to be an attractive employer globally.

An important early indicator of business performance for mechanical and systems engineering companies is orders received. Order backlog for a certain period is determined by subtracting sales revenues from orders received during that time. Order backlog is a key indicator of the expected utilization of operational capacities in the coming months. Orders received and order backlog are determined for KUKA Group and for the divisions.

All key indicators are continuously tracked and reviewed by KUKA Group's management companies and its corporate accounting and controlling departments. Management analyzes any deviations from plan and decides on the necessary corrective actions required to achieve the targets.

Key performance indicators for KUKA Group over 5-year period

in € millions	2012	2013	2014	2015	2016
Sales revenues	1,739.2	1,774.5	2,095.7	2,965.9	2,948.9
EBIT	109.8	120.4	141.8	135.6	127.2
ROCE (in %)	32.3	36.9	28.9	20.0	16.2
Free cash flow	77.1	95.4	-172.2	95.7	-106.8

Achievement of targets

In the year under review, 2016, KUKA Group met its financial targets. In its outlook in the 2015 annual report and at the annual results press conference on March 22, 2016, the Executive Board forecast sales revenues for 2016 of more than €3.0 billion and an EBIT margin in excess of 5.5% before purchase price allocation for Swisslog.

Overall demand in 2016 was expected to remain relatively stable. Both customer segments – general industry and automotive – and from a regional viewpoint, China and North America, were expected to make a positive contribution to sales revenue development.

On publication of the results for the first nine months of 2016, the revenue target for 2016 was adjusted to about €3.0 billion. The reason for this was that the improving trend in revenues over the second half-year was not anticipated to be sufficient to offset the declines in the first half-year.

In 2016 the EBIT margin was likely to be affected by growth investments in Group-wide development of solutions for Industrie 4.0, in general industry and in China. In addition, higher costs were expected in connection with the development and launch of new products. The expenditure for purchase price allocation for Swisslog was scheduled to amount to about €10 million in 2016, significantly less than in the previous year.

When reporting the first-half results for 2016, the Executive Board adjusted the target for the EBIT margin on account of the takeover bid from Midea. An EBIT margin of more than 5.5% was still expected before purchase price allocation for Swisslog, but now also before the additional extraordinary expenses of about €30 million related to the takeover.

2016 target values

	Sales revenues	EBIT margin
Annual results press conference for the full year 2015	> €3.0 billion	> 5.5% ¹
1 st quarter 2016	> €3.0 billion	> 5.5% ¹
2 nd quarter 2016	> €3.0 billion	> 5.5% ²
3 rd quarter 2016	~ €3.0 billion	> 5.5% ²

¹ Before purchase price allocation for Swisslog

² Before purchase price allocation for Swisslog and before extraordinary expenses related to the Midea takeover

In the year under review, the target value forecast for sales revenues and adjusted in November was met. The Group achieved sales revenues of €2,948.9 million. This value corresponds approximately to the previous year's level and lay within the target corridor of around €3.0 billion. In particular the Robotics division succeeded in increasing its sales revenues by 9.2%. For Systems and Swisslog, the results declined.

Adjusted for the exceptional effects arising from the Midea takeover and the effects of the scheduled depreciation on the purchase price allocation for Swisslog, the EBIT margin stood at 5.6%. This met the operational target for 2016.

The Robotics division achieved an EBIT amounting to €100.7 million in 2016, thus matching the previous year's level of €100.2 million. Strong growth in all three customer segments, namely automotive, general industry and service, and also in the regions of Europe, North America and especially China contributed to this positive result.

The EBIT margin in the Systems division declined from 7.8% in 2015 to 6.5%. In 2015 Systems had benefited significantly from book profits arising from the sale of HLS Group and the Tools and Dies business unit.

Swisslog recorded an EBIT margin of 0.8% compared to the 2015 result of -7.4%. Adjusted for the effects of purchase price allocation amounting to €10.8 million, the margin was 2.6%.

In the year under review KUKA achieved a net profit of €86.2 million, virtually equaling that of the previous year (2015: €86.3 million).

Capital expenditure was €99.6 million (2015: €107.0 million). This reflects the continuing high level of investment in research and development to lay the groundwork for future growth. At the same time, investment in tangible assets reduced significantly, due mostly to completion at the beginning of 2016 of the new Development and Technology Center in Augsburg.

Free cash flow in fiscal 2016 was negative, amounting to € -106.8 million, contrary to the set target of a positive double-digit million euro value. In the previous year the free cash flow had still been clearly positive at €95.7 million. This development is primarily due to the marked increase in trade working capital.

For more detailed information, please refer to the "Financial position and performance" section beginning on page 37.

Research and development

The area of research and development (R & D) is of crucial importance for KUKA as an innovative technology enterprise. That is why KUKA invested in this area once again in the year under review. R & D expenditure amounted to €126.6 million in 2016, higher than the value for the same period of the previous year (2015: €105.4 million).

R & D expenditure is attributable predominantly to the Robotics division and, to an increasing extent, to topics concerning the whole Group. In the year under review, a total of 213 patent applications were filed by Robotics and 195 patents were granted. Swisslog filed 14 patent applications and 47 patents were granted. Systems mainly carries out research and development activities within the framework of customer projects. A total of 42 patent applications were filed and 61 patents granted here.

In the year under review, KUKA worked on expanding the existing product portfolio to meet the specific requirements of the growth markets on which efforts are being focused – the electronics industry, for example. A further focus was on key technologies for Industrie 4.0, such as human-robot collaboration (HRC), mobility and smart platforms. At the major flagship industrial fairs in Hanover and Munich, KUKA showcased tangible solutions and application examples for networking in the cloud, big data and the smart factory. KUKA demonstrated the added value that customers can gain from the megatrend of digitization and how cloud computing and networking can help increase the efficiency of the company's own production – for example, by reducing service costs.

KUKA's Corporate Research is active on a Group-wide scale and develops technologies for future-proof products and solutions of all the Group companies.

Robotics division

KUKA Connect enables customers to easily access the data on their KUKA robots at any time and on all devices. The new cloud-based platform collects and processes the complete information from all networked devices on a central basis. This knowledge allows users to register error messages in real time, to monitor maintenance activities and condition data, and to produce comprehensive event logs. Analyzing these data can increase the efficiency of customers' own production operations by enabling them to track energy consumption and service intervals, for example. This minimizes service times, therefore saving costs.

At Hanover Fair, KUKA unveiled the newly developed KR 3 AGILUS that has been specifically tailored to the requirements of the electronics industry, and here in particular to micro-cell concepts in confined spaces. The 3C market (Computer, Communications and Consumer Electronics) is one of the world's largest and fastest-growing markets for robotic automation. As with the other small robots of the KR AGILUS series, a particular focus is on speed and precision.

With the example of the KR AGILUS Cobotics Concept (CC), KUKA additionally demonstrated how collaboration between humans and robots can also be applied to classic industrial robots. For this, KUKA has equipped the KR AGILUS series with a force/torque sensor in the robot base as part of a concept study. This enables the KR AGILUS CC to detect collisions with humans and perform sensitive tasks. Here, the extreme speed and precision of an industrial robot are combined with the functionality of HRC. The user can carry out a teaching process by manually guiding the KR AGILUS CC in HRC mode. The small robot executes the application at production velocity in automatic mode within the enclosed area.

Using the KUKA Sunrise.Workbench engineering suite, graphical programming of the sensitive LBR iiwa is now really easy – even without programming knowledge. Users subsequently have the opportunity, as usual, to intuitively teach the target points by simple demonstration and to optimize the parameters of the blocks. Immediately afterwards, the LBR iiwa executes the application as desired by the users.

An autonomously navigating AGV with a payload capacity of 1500 kg, the KMP 1500, has also been equipped with a Sunrise controller. A prototype of this vehicle was presented at Hanover Fair and Automatica and was being tested by various customers in trials and pilot applications. The KMP 1500 provides the basis for logistics automation in the automotive segment and in other industries and can be equipped with different industrial robots for mobile robotic applications. KMR iiwa is a Sunrise-controlled, HRC-compliant mobile robot that carries out complex manipulation tasks in varying locations without the need for safety fencing.

At the Computer Assisted Radiology and Surgery (CARS) research congress, KUKA showcased the “Haptic Ultrasound” application. The robotic ultrasound application with the LBR iiwa sensitive lightweight robot demonstrated the possibilities that HRC opens up in the field of medical technology. The robot arm is fitted with an ultrasound sensor and executes exactly those motions specified by the user in a haptic input system. The sensor then generates images in real time, which are transferred to the monitors via a USB interface. The separation of controller and robot allows the patient and doctor to be in different places.

Systems division

The concept of versatile body-in-white production was developed further. The “Matrix bodyshop” concept enables the individual process steps to be executed in standardized cells with automated guided vehicles (AGVs) performing the logistics operations. In the period under review, a test cell was set up to validate all the technologies required in order to realize the concept. This test cell provides customers with an opportunity to watch a live demonstration of the technical implementation of this innovative solution. The test set-up involves a standard production cell as well as a small warehouse with all relevant parts, and a tool store. It is equipped with various AGVs so that all the functionalities of a real production system are illustrated.

In addition to the flexFELLOW a comprehensive ecosystem was planned for the LBR iiwa with which KUKA provides customers with the fullest possible set of highly compatible elements from which they are able to build their individual solution. Based on the flexFELLOW, a mobile robotic unit with the LBR iiwa, solution modules were developed that enable the user to automate certain tasks within a short time and without the need for major programming. In the period under review, initial elements and products of this planning were developed, for example the pneumatic HRC gripper and a safe electric gripper. Prototype-status grippers are being tried out by various test customers.

KUKA Industries

KUKA Industries presented the new “KUKA flexibleCUBE laser” compact welding cell at Lasys 2016, the international trade fair for laser material processing. With its plug & play solution, the laser cell is user-friendly and its compact design enables flexible implementation. It is ideal for a dynamic production environment and can be upgraded, converted or relocated very quickly. The special features of the laser cube are the stationary optics for laser cladding and the robot that takes over workpiece handling tasks inside the cell.

KUKA Industries revealed the future of production at Hanover Fair and Automatica with the Coffee 4.0 application. Based on an easy-to-follow example taken from everyday life – coffee beverages in all variations – a production system fully networked via the cloud was presented, demonstrating all the important aspects of Industrie 4.0.

Swisslog division

Among the new products presented last year by Swisslog Warehouse and Distribution Solutions (WDS) are the highly dynamic CycloneCarrier warehouse shuttle system for small parts and the PowerStore shuttle technology for pallets. Shortly after its launch, CycloneCarrier was already sold to the first customer, the German organic food producer, Alnatura.

One software innovation from Swisslog is the SynQ – Synchronized Intelligence – control solution, a warehouse management system geared to meeting the high requirements of digitization and the successor to the WM-6 in-house software platform. SynQ is to be launched on the market at the start of the international logistics trade fair, LogiMAT 2017. This cloud-based platform offers all the essential functionalities of a warehouse management system, supplemented by numerous useful applications for integrative warehouse management that can be used on all end devices – whether mobile or in the workplace. Expanded services such as condition monitoring, permanent computer-controlled monitoring of material flows in real time and 3D visualization round off the activities of Swisslog in the IT sector. They lay the foundation for a future in which the optimized operation of machinery and data-driven warehouse automation will play a central role.

Corporate research

KUKA presented innovative Group research projects at ICRA (International Conference on Robotics and Automation), the world's largest robotics conference held in Stockholm. Taking the KR AGILUS as an example, a new type of energy-efficient path planning was demonstrated that can achieve savings of up to 30% depending on the specific task. The important value of peak demand for energy supply can even be reduced by up to 60%. KUKA is developing technologies for the energy-efficient operation of robots as part of the AREUS project. In another application, KUKA demonstrated machine learning with a smart KUKA LBR iiwa lightweight robot.

Awards for KUKA products and solutions

The human-robot order-picking solution "Automated Item Pick (AIP)" from Swisslog was honored with the Industry Award 2016 at Hanover Fair. With the slogan "Success through progress", AIP managed to win through as the most innovative solution with the greatest benefits for the economy and society in the category "Intralogistics & Production Management". At the end of 2016, Swisslog also received the award "Líderes da Saúde 2016" in the category "Suprimentos e Logística" in Brazil, and the Coca Cola Excellent Supplier Award in China. The Logistics & Material Handling magazine also honored Swisslog and the CycloneCarrier with two awards, while the CarryPick took the Logistics Technology Award 2016.

At the Volvo Asia-Pacific Annual Supplier Convention at the end of last year, KUKA Systems China received the Volvo Innovation Award for outstanding achievements. Various KUKA products also won designer awards last year. For example, the KR 120 R2100 nano F exclusive (Foundry) gained several awards, including the iF Award, the Red Dot Design Award, the Good Design Award USA and the International Design Excellence Award USA. The KMR iiwa proved successful with the German Design Award in the category of Special Mention 2016/17.

Procurement

The advanced integration of Swisslog enabled savings and improved supply conditions to be achieved with joint suppliers of the KUKA companies in 2016 too. Savings effects were attained in indirect purchasing by combining volumes and suppliers. To this end, all KUKA companies launched a project in the previous year with the objective of facilitating close cooperation in the future procurement of these materials and services.

Procurement at Robotics

The favorable raw material prices enabled Robotics to achieve purchasing savings in the double-digit million euro range in the year under review. There was also a significant increase in localization in China and the supplier base was expanded considerably.

Procurement at Systems

The procurement volume of the Systems division increased by 30% in the year under review. This was achieved, inter alia, through an increase in turnkey contracts. KUKA Systems thus reached an all-time high. The analysis and fine-tuning of the purchasing interfaces and processes in 2015 as part of an optimization project resulted in a new purchasing organization which showed initial successes: greater strategic cooperation, a more proactive approach and a strengthening of front loading. Additional savings in the mid-single-digit million euro range were achieved in conjunction with the interface partners.

The negotiating skills of the teams were enhanced with appropriate training sessions. The collaboration with strategic purchasers in the HUBs helped to enhance joint global procurement successes. Strategic partnerships with suppliers were also identified within the scope of Industrie 4.0 projects.

Procurement at Swisslog

Existing framework agreements with key suppliers were transferred to KUKA Group in the year under review. This enabled further savings to be achieved and improved supply conditions to be negotiated.

The Swisslog production site of Warehouse and Distribution Solutions (WDS) in Kunshan/China was transferred to the KUKA Industries sites in Kunshan (Asian production volume of the ProMove pallet conveyor system) and Chomutov/Czech Republic (European production volume of ProMove) at the turn of the year 2016/2017. The WDS site in Austria (entire production line of CycloneCarrier) was also transferred to KUKA Industries in Chomutov. This meant that production and the associated procurement were handled in conjunction with KUKA Industries in the year under review.

The savings targets formulated in the previous year for the project business of the WDS division were accomplished. Material cost improvements were also made in procurement at the production sites of both divisions – WDS and Healthcare Solutions (HCS). The main drivers of these developments were design-to-cost initiatives combined with tenders and reallocations along with a reduction in the vertical range of manufacture and therefore the purchasing of pre-assembled units. Significant cost improvements were also made in conjunction with KUKA in the field of indirect materials as a result of pooling and reallocations: this related, for example, to the procurement of business vehicles and cell phones in Germany and the courier, express and parcel service (CEP) in four European countries.

Economic report

Macroeconomic and industry conditions

IMF forecasts economic growth of 3.4% – USA and China are drivers of this trend

According to the International Monetary Fund (IMF), global economic growth amounted to 3.1% in the past financial year. Growth of 3.4% is expected for the coming year and even 3.6% in 2018. This means an increase of 0.3 percentage points for 2017 compared to the previous year. The IMF considers the USA and China to be the drivers behind these developments. The reasons for this are that the new US government has announced tax cuts for companies and investments in infrastructure which have a positive impact on the economy. Growth of 2.3% is expected for 2017 and 2.5% for 2018. In the forecast, reference is also made to growing protectionism as a consequence of the US government's policies, which will mainly have an effect on economically weaker countries such as Mexico, India and Brazil.

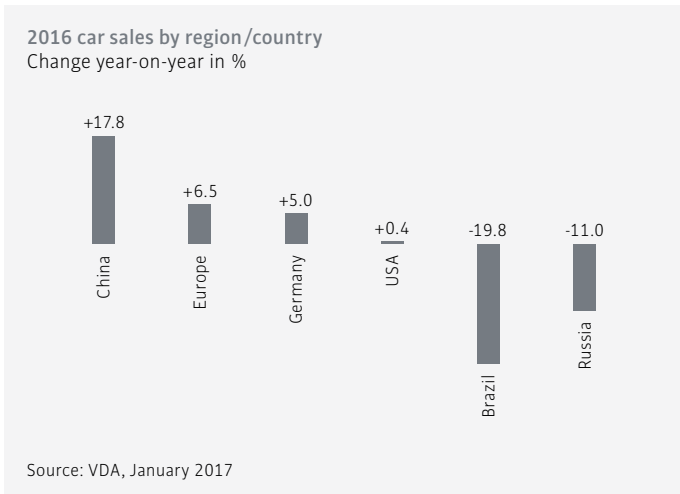
According to the IMF, China continues to be one of the largest motors for growth of the global economy. However, compared to previous years, growth rates have continued to decline. The IMF forecasts a slowdown in growth from 6.7% to 6.5% in 2017 and 6.0% in 2018. The IMF economists adjusted the anticipated growth for Europe to 1.7% in 2016. Economic growth totaling 1.6% is anticipated for this region in 2017. They also forecast a decline in growth from 2.0% to 1.5% for the United Kingdom. The reason for this is the United Kingdom's exit from the European Union, which results in the British currency being devalued and a negative impact on real income. The growth forecast for Germany was reduced in October from 1.7% to 1.5%. In order to promote global growth, the IMF demands more political impetus such as labor market reforms and the dismantling of trade barriers.

The Business Climate Index of the Institute of Economic Research (ifo) is regarded as an early indicator of economic development in Germany. The ifo index reached its highest level since April 2014 last October at 110.5 points, climbing to 111.0 points by the end of the year before dropping to 109.8 points at the end of January. Companies are therefore less optimistic about the future business performance over the course of the next six months.

Significant sales growth in the automotive markets of Germany and China

According to the German Automotive Industry Association (VDA), there were just under 3.4 million new registrations in Germany in 2016. This corresponds to an increase of 5.0% and resulted in the highest market volume of this decade. 5.7 million new cars were manufactured in Germany during the year under review. This is equivalent to an increase of 1% compared to production of the previous year. Domestic orders received were down slightly at 1% below the value of the previous year, while orders from abroad increased by just under 3%. Exports amounted to 4.4 million passenger cars and remained unchanged compared to the previous year.

The USA recorded a slight increase of 0.4% in sales of light vehicles (passenger cars and light trucks) in 2016. Car sales in China increased by almost 18% to 23.7 million units. Trends on the Russian (-11.0%) and Brazilian (-19.8%) markets were negative. According to VDA, the markets in Western Europe grew. The number of new registrations rose by 5.8% to nearly 14 million cars. Almost all Western European countries reported a rise: Italy by 16%, Spain by 11% and France and Germany by 5%.



Mechanical and systems engineering in slight decline

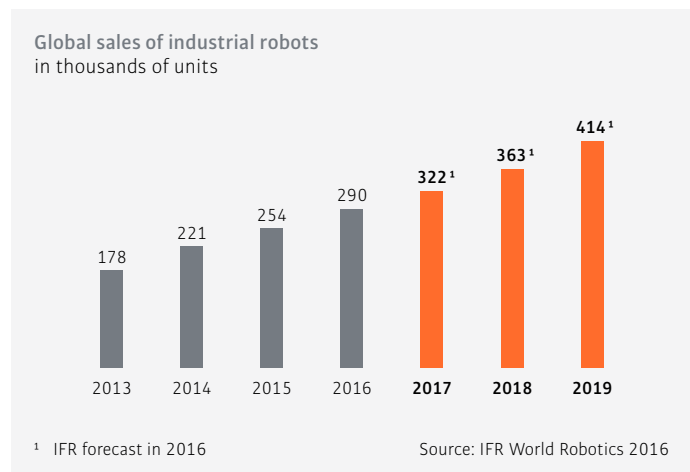
According to the German Engineering Association (VDMA), the mechanical and systems engineering sector recorded a decrease of 2% in orders received during the 2016 fiscal year compared to the previous year. There was a decline in demand both domestically and abroad. This was attributable to the political uncertainties worldwide and the moderate economic outlook for 2016. The VDMA is predicting a rise of 1% in German machinery production for the 2017 fiscal year. According to the VDMA, orders received in the robotics and automation sectors increased by 6%, while sales revenues rose by 2% compared to the previous year.

Growth potential in robotics and automation through Industrie 4.0

In 2016, the global trend towards robot-based automation of production processes continued. Research and development is placing pioneering technologies and products on the market, leading to new fields of application. Numerous process steps can now be automated where until recently it was hard to imagine robots could be used. Automation enables companies from different industries and small and medium-sized enterprises to make their production more efficient. The focus is on connecting the real and virtual production worlds in the context of Industrie 4.0, as well as on safe collaboration between humans and robots, and on mobile robotics. The safety factor, intuitive operation and solutions for networked digital production are playing an important role. From a regional perspective, China offers huge sales potential as the largest growth market for robotics. The reasons for this are rising labor costs, growing quality requirements and the focus on increasing efficiency and the previously low robot density.

As the global industry association, the International Federation of Robotics (IFR) estimated worldwide sales of 290,000 industrial robots for 2016. This was an increase of 14% on the previous year (250,000 units). In Asia, IFR was anticipating 190,000 industrial robots sold in 2016, of which 90,000 are accounted for by China alone. This was a rise of 15% in Asia (including Australia) and even an increase of 22% in China. For 2017 to 2019, the IFR forecasts annual average growth of 13%, and around 20% in China. At the end of 2019 about 2.6 million industrial robots are expected to be deployed in factories worldwide, with an estimated 730,000 units used in China.

According to forecasts, this trend will continue in all major sales markets for robots in Asia. The automotive industry and, above all, the electronics industry are considered to be the largest growth drivers for robotics in Asia. Broken down by industry, IFR states that approximately 70% of industrial robots are currently used worldwide in the automotive, electronics and metal segments. The greatest increase in the number of operational units in 2015 was in the electronics industry with 18%.



Business performance

Orders received

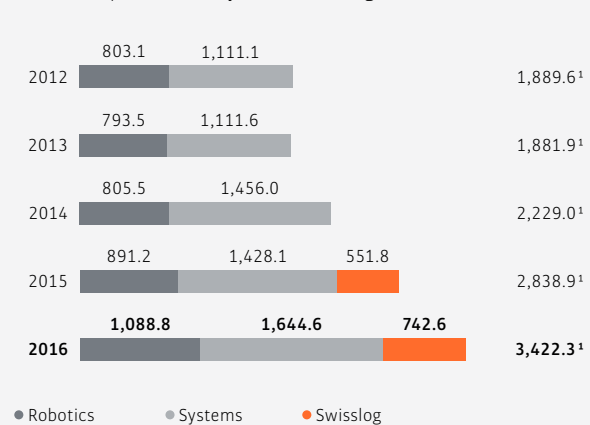
During the past financial year KUKA Group received orders amounting to €3,422.3 million; this was 20.6% higher than the value for the previous year (2015: €2,838.9 million). This record value surpassed the three billion euro mark for the first time. All three business divisions contributed to this good result.

In the year under review, **KUKA Robotics** once again increased the volume of orders received from €891.2 million to €1,088.8 million. This good result was attributable to strong demand in all three customer segments: automotive, general industry and service. From a regional perspective, the increase was particularly strong in Europe, China and North America. China deserves special mention, accounting for about 21% of Robotics sales of robots and services during the past financial year. Compared with 2015 this represents an absolute increase of 37%. In 2016 the orders received from the automotive industry amounted to €442.4 million (2015: €339.6 million). In general industry too, orders received were significantly higher than the previous year, at €444.7 million (2015: €374.2 million). This was a gain of 18.8%. These were mainly smaller orders which tended to offer higher margins and to come from different sectors. Further expansion in the general industry segment is one of the main strategic objectives of the Robotics division. This is being driven by a broadening of the product portfolio and an increase in the workforce. Service business generated €201.8 million, representing a gain of 13.8% on the value of €177.4 million for the previous year. This increase was due to the greater number of installed KUKA robots.

KUKA Systems also benefited from the very good order situation, and posted orders received amounting to €1,644.6 million for the financial year (2015: €1,428.1 million). The automotive division supported this trend and was able to provide a positive impetus with several large-scale orders. Strong demand continued in North America. Orders from leading automobile manufacturers were also received from other regions such as Germany and China. As in the previous year, the other Systems segments Assembly & Test, Pay on Production and KUKA Industries also contributed to the positive trend.

Swisslog won orders totaling €742.6 million during the past financial year (2015: €551.8 million), thereby establishing a new record. Almost 75% of the orders received were generated by the Warehouse and Distribution Solutions (WDS) division and about 25% by the Healthcare Solutions (HCS) division. WDS benefited from the high rates of growth in the e-commerce segment and the relatively low degree of automation in logistics warehouses. The orders received improved accordingly by more than 60%. HCS was affected by weaker demand, especially in Asia and parts of Europe, which the virtually stable trend in the USA could not offset. Orders received dropped by around 10%.

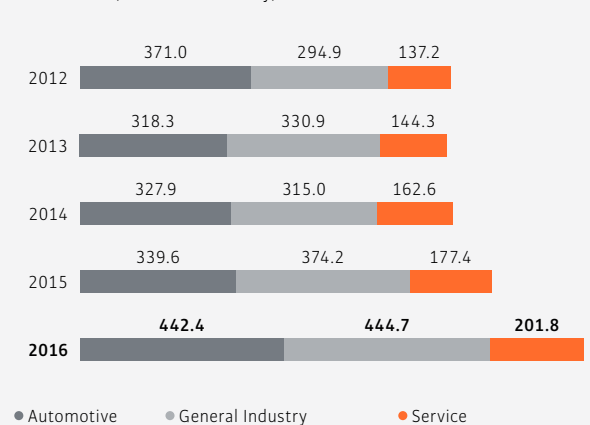
Orders received
KUKA Group, Robotics, Systems, Swisslog in € millions



● Robotics ● Systems ● Swisslog

¹ Group incl. consolidation

Orders received – Robotics
Automotive, General Industry, Service in € millions



● Automotive ● General Industry ● Service

Sales revenues

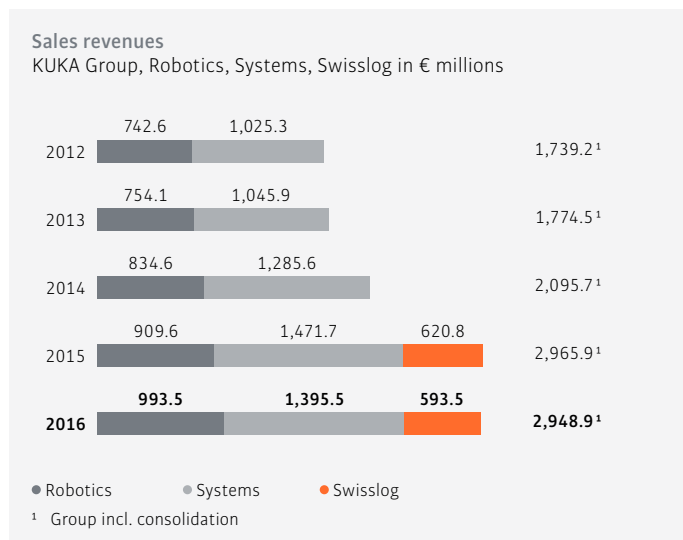
The sales revenues of KUKA Group reached a value of €2,948.9 million in 2016 and were thus at almost the same level as the previous year, when they amounted to €2,965.9 million.

Robotics was again able to increase its sales revenues to €993.5 million. Compared to the previous year, revenues rose by 9.2% (2015: €909.6 million). This means that KUKA Robotics has reported an increase in revenues for seven successive years. The average annual growth rate since 2011 has been about 9%. Sales figures in China have led to very high capacity utilization, with the result that the KUKA management has decided to expand production capacities in China.

Systems achieved sales revenues amounting to €1,395.5 million in 2016. This represents a decline of 5.2% on the previous year (2015: €1,471.7 million). One reason for this is that call-offs on orders will predominantly be made in subsequent quarters. Major orders in the Systems division are often characterized by a lapse of more than nine months between winning a contract and realizing the corresponding revenue. This can result in a different pattern of sales revenues compared to orders received.

Furthermore the revenues of HLS Group and the Tools and Dies business unit sold in 2015 were still included in the previous year.

The **Swisslog** division generated sales revenues totaling €593.5 million. This represents a decline of 4.4% from €620.8 million in 2015.

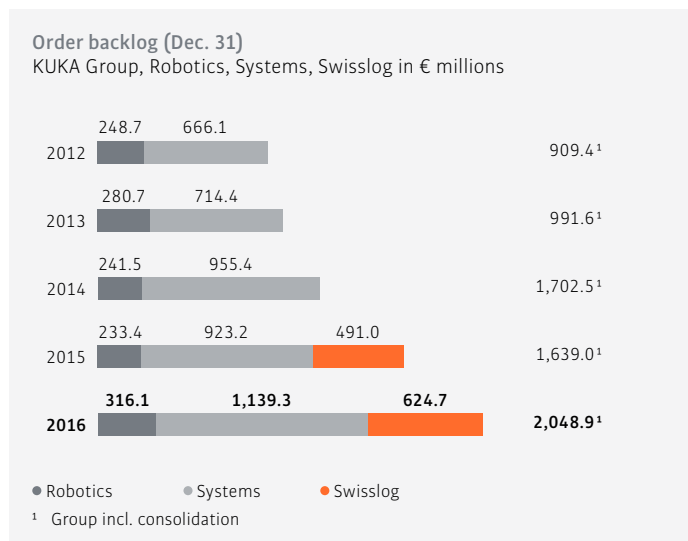


Book-to-bill ratio and order backlog

The book-to-bill ratio, in other words the ratio of orders received to sales revenues, came in at 1.16 at Group level (2015: 0.96). Values of about 1 represent good capacity utilization and values above 1 signify an increased volume of business. In 2016, all three business divisions achieved outstanding figures in this respect: Robotics 1.10 (2015: 0.98), Systems 1.18 (2015: 0.97) and Swisslog 1.25 (2015: 0.89).

KUKA Group's order backlog amounted to €2,048.9 million at year-end 2016. This was an increase of 25.0% compared to the previous year-end (2015: €1,639.0 million). The persistently high order backlog represents around two thirds of annual sales revenues and will thus ensure good capacity utilization during fiscal 2017 and to some extent already for 2018 as well. Robotics had an end-of-year order backlog (not including framework agreements from the automotive industry) of €316.1 million (2015: €233.4 million). The order backlog at KUKA Systems reached a year-end level of €1,139.3 million, a substantial increase on the prior-year figure of €923.2 million. Swisslog had an order backlog of €624.7 million at the end of the year (2015: €491.0 million).

in € millions	2015			2016		
	Orders received	Sales revenues	Book-to-bill ratio	Orders received	Sales revenues	Book-to-bill ratio
Group	2,838.9	2,965.9	0.96	3,422.3	2,948.9	1.16
Robotics	891.2	909.6	0.98	1,088.8	993.5	1.10
Systems	1,428.1	1,471.7	0.97	1,644.6	1,395.5	1.18
Swisslog	551.8	620.8	0.89	742.6	593.5	1.25



EBITDA and EBIT

EBITDA, namely earnings before interest, taxes, depreciation and amortization, totaled €205.3 million, after €259.1 million in the previous year. The EBITDA margin in 2016 was thus 7.0%, having been 8.7% in 2015.

Before depreciation on the purchase price allocation for Swisslog and before extraordinary expenses for the Midea takeover, EBIT stood at €166.0 million in 2016. This corresponds to an EBIT margin of 5.6%. In 2015 EBIT before depreciation on the purchase price allocation for Swisslog and before extraordinary income from the disposals of HLS Group and the Tools and Dies business unit was €181.7 million. This corresponded to a margin of 6.1%. These figures should however be viewed in the context of the additional investments in preparation for future growth undertaken by KUKA in 2016 in the fields of Industrie 4.0 and software. The area of research and development alone benefited by more than €20 million from this commitment to growth.

Taking into account all the expenditure in 2015 and 2016, KUKA achieved an EBIT of €127.2 million (margin: 4.3%) in the past financial year, compared to €135.6 million (margin: 4.6%) in the preceding year. In 2016 the extraordinary expenses relating to the Midea takeover and depreciation on the purchase price allocation for Swisslog amounted to €28.0 million and €10.8 million respectively.

Robotics recorded an EBIT of €100.7 million in 2016, a slight increase from €100.2 million in 2015. This was a year-on-year rise of 0.5%. The EBIT margin at 10.1% was however lower than for the previous year (2015: 11.0%). The principal reason for the lower margin was the significant increase in R & D expenditure, which outweighed the effects of scale and higher sales revenues in the general industry and service segments.

Systems posted an EBIT of €91.3 million for the past financial year. Compared to the prior-year value of €114.7 million, this represented a decline of 20.4% in the EBIT. The EBIT margin trend was negative from 7.8% to 6.5%. In 2015 Systems benefited especially from book profits arising from the sale of HLS Group and the Tools and Dies business unit.

Swisslog achieved an EBIT of €4.8 million in fiscal 2016, having posted a negative EBIT of €-45.9 million in the previous year. This resulted in a positive EBIT margin of 0.8% in 2016, after a figure of -7.4% in 2015. Before the depreciation on the purchase price allocation, the EBIT in 2016 was €15.6 million (margin: 2.6%) after €20.9 million in 2015 (margin: 2.1% or, adjusted, 3.4%).

Financial position and performance

Summary

2016 was another successful year for KUKA Group. The revenue target of around €3 billion was achieved. The strong order situation over a number of years points to further growth. The Robotics division received new orders worth of over €1.1 billion for the first time.

The Swisslog division made its first positive contribution to EBIT in 2016 including the negative effects of the purchase price allocation. The Robotics division achieved an absolute increase in EBIT, thereby surpassing the previous year's record level. These two developments thus compensated for the decrease in EBIT in the Systems division. Overall EBIT was significantly impacted by one-off expenses in connection with the Midea Group takeover bid. Excluding these charges of €28.0 million, EBIT would have risen from €135.6 million to €155.2 million. Fiscal 2016 can therefore be regarded as a positive year on the whole for KUKA Group.

Earnings

KUKA Group posted orders received amounting to €3,422.3 million in the year under review – a significant increase over the prior year's level (2015: €2,838.9 million), thus once again exceeding all previous figures.

Sales revenues remain high

Sales revenues totaled €2,948.9 million. They are thus at approximately the previous year's level. The target of around €3.0 billion has thus been achieved.

Since 2009, the Robotics division has reported annual increases in sales revenues and this trend continued in 2016. It was possible to achieve a further 9.2% increase on the very high level of the previous year from €909.6 million to €993.5 million. The division's revenues are therefore now just under the billion mark. KUKA fosters this trend by, for instance, systematically focusing sales on particular customer-oriented market segments and intensifying its service business. Measures such as developing products which are specifically aimed at certain geographical markets or customer groups are proving successful. Orders received and sales revenues in the three segments – automotive, general

industry and services – rose in comparison with the previous year and now total €1,088.8 million (2015: €891.2 million) and €993.5 million (2015: €909.6 million) respectively.

Over the past financial year the Systems division was not able to fully match the success enjoyed in the previous year. With sales revenues of €1,395.5 million, the segment was 5.2% down on the previous year (2015: €1,471.7 million). However at this juncture it should be noted that Systems has an extremely positive order situation with new orders of €1,644.6 million (2015: €1,428.1 million) and an order backlog of €1,139.3 million (2015: €923.2 million), a new record for the division. The order backlog is thus theoretically equivalent to about 81.6% (2015: about 62.7%) of annual revenues and allows a high level of capacity utilization to be anticipated for 2017 as well.

Key figures – KUKA Group

in € millions	2012	2013	2014	2015	2016
Orders received	1,889.6	1,881.9	2,229.0	2,838.9	3,422.3
Order backlog	909.4	991.6	1,702.5	1,639.0	2,048.9
Sales revenues	1,739.2	1,774.5	2,095.7	2,965.9	2,948.9
EBIT%	109.8	120.4	141.8	135.6	127.2
in % of revenues	6.3	6.8	6.8	4.6	4.3
in % of capital employed (ROCE)	32.3	36.9	28.8	20.0	16.2
Extraordinary expenses ¹	–	–	–	–	28.0
EBIT adjusted ¹	109.8	120.4	141.8	135.6	155.2
EBIT adjusted ¹ in % of revenues	6.3	6.8	6.8	4.6	5.3
EBIT adjusted ¹ in % of capital employed (ROCE)	32.3	36.9	28.8	20.0	19.8
EBITDA	138.5	158.4	185.3	259.1	205.3
in % of revenues	8.0	8.9	8.9	8.7	7.0
Extraordinary expenses ¹	–	–	–	–	28.0
EBITDA adjusted ¹	138.5	158.4	185.3	259.1	233.3
EBITDA adjusted ¹ in % of revenues	8.0	8.9	8.9	8.7	7.9
(Average) capital employed	339.8	326.2	492.0	676.8	783.0
Employees ² (Dec. 31)	7,264	7,990	12,102	12,300	13,188

¹ Extraordinary effect due to the takeover bid by Midea Group

² Figures for employees are based on the full-time equivalent throughout the annual report.

The Swisslog division achieved revenues amounting to €593.5 million (2015: €620.8 million), with about two thirds in Warehouse & Distribution Solutions and one third in Healthcare Solutions.

Gross income from sales increased 9.8% on the previous year to €766.5 million (2015: €698.0 million). The decline in the cost of sales in particular, due in part to an improved cost-of-materials ratio and foreign currency effects pertaining to supplies and services, contributed to this improved result. The considerably lower purchase price allocation charges for Swisslog are also of relevance here. The Group's gross margin thus rose from 23.5% in 2015 to 26.0% in 2016.

The main contribution to the rise in the gross margin was made by the Swisslog division. With gross income from sales of €159.6 million (2015: €97.7 million), a margin of 26.9% was achieved.

The gross margin in the Robotics division decreased slightly from 38.0% in the previous year to 37.0% in 2016 with gross earnings of €345.8 million in 2015 and €367.5 million in 2016. Despite lower sales revenues the Systems division achieved a slight rise in the gross margin from 17.2% in 2015 to 17.4% in 2016 with gross income of €242.4 million in 2016 (2015: €253.7 million).

The key figures for the individual divisions were as follows:

Key figures – Robotics

in € millions	2012	2013	2014	2015	2016
Orders received	803.1	793.5	805.5	891.2	1,088.8
Order backlog	248.7	280.7	241.5	233.4	316.1
Sales revenues	742.6	754.1	834.6	909.6	993.5
EBIT	80.2	77.1	88.9	100.2	100.7
in % of revenues	10.8	10.2	10.7	11.0	10.1
in % of capital employed (ROCE)	57.2	49.6	53.1	56.6	51.7
EBITDA	95.9	101.9	112.0	126.1	123.2
in % of revenues	12.9	13.5	13.4	13.9	12.4
Capital employed	140.2	155.6	167.3	177.1	194.9
Employees (Dec. 31)	3,180	3,416	3,644	4,232	4,726

Key figures – Systems

in € millions	2012	2013	2014	2015	2016
Orders received	1,115.1	1,111.6	1,456.0	1,428.1	1,644.6
Order backlog	666.1	714.4	955.4	923.2	1,139.3
Sales revenues	1,025.3	1,045.9	1,285.6	1,471.7	1,395.5
EBIT	47.7	60.8	80.2	114.7	91.3
in % of revenues	4.7	5.8	6.2	7.8	6.5
in % of capital employed (ROCE)	23.8	43.0	67.9	87.9	42.8
EBITDA	57.8	71.0	97.4	135.6	113.5
in % of revenues	5.6	6.8	7.6	9.2	8.1
Capital employed	200.5	141.5	118.1	130.5	213.1
Employees (Dec. 31)	3,902	4,362	5,810	5,146	5,189

Key figures – Swisslog

in € millions	2014 ¹	2015	2016
Orders received	–	551.8	742.6
Order backlog	517.2	491.0	624.7
Sales revenues	–	620.8	593.5
EBIT	–	-45.9	4.8
in % of revenues	–	-7.4	0.8
in % of capital employed (ROCE)	–	-14.5	1.5
EBITDA	–	24.5	28.2
in % of revenues	–	3.9	4.8
Capital employed	154.6	315.9	317.4
Employees (Dec. 31)	2,369	2,555	2,679

¹ Swisslog was consolidated for the first time as of December 31, 2014.

KUKA Group's functional costs – the costs of administration and sales as well as research and development – rose year-on-year from €569.7 million in 2015 to €622.7 million in 2016. These overhead costs amounted to 21.1% of sales revenues, which was higher than the previous year's level of 19.2%. If the extraordinary expenses in connection with the Midea Group takeover bid are taken into account, the share amounts to just 20.2%.

The increase in selling expenses (2015: €251.2 million; 2016: €267.9 million) was partly attributable to the strengthening of the sales team. KUKA had 1,560 sales employees as at December 31, 2016, 11.9% more than at the previous year-end, when the number was 1,394. This expansion is an important foundation for increasing market penetration and tapping new markets. Another step towards this goal is optimization of the communication culture between KUKA and its customers and partners. Cooperation with Salesforce enables KUKA to achieve much closer interaction of customers and partners with sales, service and marketing employees along the entire value chain. The selling expenses ratio amounted to 9.1% (2015: 8.5%).

A rise of €15.1 million in administrative expenses was recorded. In fiscal 2016 this was mostly attributable to extraordinary effects from the takeover bid of June 16, 2016 by Midea Group (for further details, please refer to the “KUKA on the capital market” section). Considerable unplanned consultancy expenses arose in relation to the takeover bid as well as additional personnel costs for the existing phantom share programs for members of the Executive Board and senior management. Overall, the extraordinary effects currently amount to around €28.0 million. These are presented in the segment report under reconciliation and consolidation.

The remainder of the increase is attributable to cross-segment measures aimed at optimally focusing KUKA Group on the requirements of existing and future markets. These measures are being implemented in ongoing internal projects relating to the harmonization, standardization and optimization of processes as well as the introduction of global IT platforms. They initially lead to higher external and internal expenditure, which is reflected in increased administrative costs.

It has been and remains important for KUKA as a technology company to provide its employees with a modern environment and the freedom to pursue groundbreaking research & development activities. Progress towards this goal was also marked by the construction of the new Development and Technology Center (DTC) at the Augsburg site. After a construction period of around 2 years, the new building was officially inaugurated in July 2016 with around 200 guests from business and politics. As well as room for around 850 staff, the new building houses an impressive showroom and the KUKA College, where between 6,000 and 7,000 customer employees are to undergo training each year.

Research and development costs carried in the income statement rose to €126.6 million in 2016, up €21.2 million on the prior year's figure of €105.4 million.

This planned increase reflects the sustained strategic orientation of the Group based on the expansion of investment in products and solutions as well as in new and forward-looking technologies. Examples of this are the three ongoing innovative projects presented at the ICRA (International Conference on Robotics and Automation, Sweden) in May 2016:

- › In Project AREUS, KUKA and its partners are developing technologies for the energy-efficient operation of robots
- › Machine learning via algorithms and the use of 3D cameras on the smart KUKA LBR iiwa lightweight robot, e.g. for automatic sorting after a short training phase
- › Concept study “youBot in a box”: options for simple programming in Java (the programming standard for KUKA industrial robots) via KUKA Sunrise.Workbench on the user's own PC to control a five-axis robot arm with a two-finger gripper connected to the PC by means of an Ethernet cable.

Another key focus of current projects is the development of industrial robots in the 3 kg range for cells of limited size. The new compact KR 3 AGILUS was presented to the wider public at Automatica 2016 with great success as an ideal solution for small cell concepts and for assembling and handling extremely small parts.

In cooperation with system partners, KUKA is also developing solutions to meet the growing needs for flexibility and ever shorter product life cycles. In October 2016 at the K trade fair for plastics in Düsseldorf, KUKA showcased a “ready-to-use” application as an application-oriented automation solution.

In the Systems (Industries) division, LaserSpy, an optical sensor designed to monitor safety in laser processing, offers safe protection from misdirected laser beams. Through efficient further development, the radius of the sensor range for monitoring has been increased from 2.5 to 3.5 meters. This makes laser cells even safer and offers significantly improved and more cost-effective design possibilities in cell construction (for example, the use of elements with large surface areas).

In the Swisslog segment the focus of development in the Healthcare division is on upgrading the enterprise-wide software used to control and monitor the flow of materials and the administration of medication, incorporating the various Swisslog solution components. Also the existing solution components are being developed further, particularly in the hospital pharmacy area.

In industrial warehouse automation a new shuttle system (“Cyclone Carrier”) has been developed and investments have been made in palletizing solutions (“Automated Case Picking” and “Automated Item Picking”); these solutions enable Swisslog customers to achieve greater gains in efficiency in the automation of their warehouses.

Please refer to the research and development section of this management report for further examples and information.

With the aim of actively addressing the opportunities offered by Industrie 4.0 and retaining our technological leadership in the field of robot-based automation solutions in the future as well, KUKA is pursuing a number of strategies. Firstly, KUKA has been investing in brain power for many years: the Group now employs 906 people in research and development – this is equivalent to 7.0% of the workforce (2015: 5.9%).

Development work is also increasingly being conducted outside Europe in order to cater even better for regionally specific market requirements. Furthermore, KUKA is intensifying its cooperation with innovative companies and taking an active role in partnerships. For example, KUKA entered into an “Industrie 4.0 partnership” with Infosys at Hanover Fair in April 2016. One of the objectives of the cooperation is to develop a software platform which will enable customers to collect, evaluate and use data in order to improve their own processes. The founding of the company connyun GmbH in April 2016 is also worthy of mention. This company develops app-based applications which are controlled via cloud platforms. With these tools customers are able to evaluate the data they have collected on production and logistics processes and use them to improve the efficiency of their processes.

The costs of €20.1 million (2015: €18.9 million) incurred for new developments in the period under review were capitalized and will be reported as an expense through scheduled amortization in subsequent financial statements. Amortization costs were €8.3 million (2015: €16.6 million) and mainly included research and development costs.

Net other expenses and income amounted to €-11.6 million compared with €8.2 million in 2015. They include expenses for other taxes (2016: €6.8 million; 2015: €5.9 million), income from subsidies (2016: 1.9 million; 2015: €2.0 million).

EBIT margin exceeds guidance¹

Earnings before interest and taxes (EBIT) totaled €127.2 million over the past financial year compared with €135.6 million in 2015. The EBIT margin for the 2016 reporting period decreased to 4.3% compared to the figure of 4.6% for the previous year. The above-mentioned extraordinary effects amounting to €28.0 million due to the ongoing takeover bid by Midea Group had a significant impact on EBIT. Without these extraordinary effects, EBIT would have been €155.2 million with an EBIT margin of 5.3%. If the effects of the scheduled amortization relating to the purchase price allocation in connection with the acquisition of Swisslog Group (2016: €10.8 million; 2015: €58.7 million) are eliminated, EBIT amounts to €166.0 million (€194.3 million) with an EBIT margin of 5.6% (2015: 6.6%). The previous year’s EBIT, excluding the book profit from the sale of HLS and the Tools and Dies business unit in 2015, by way of comparison amounts to €181.7 million with an EBIT margin of 6.1%.

Group EBIT and EBIT margin

in € millions	2015	2016
EBIT	135.6	127.2
in % of revenues	4.6	4.3
EBIT adjusted – extraordinary expenses Midea	135.6	155.2
in % of revenues	4.6	5.3
EBIT (before extraordinary expenses Midea and purchase price allocation Swisslog)	194.3	166.0
in % of revenues	6.6	5.6
EBIT (before extraordinary expenses Midea and purchase price allocation Swisslog as well as without accounting profit for sale of HLS/Tools and Dies)	181.7	166.0
in % of revenues	6.1	5.6

In the latest guidance for fiscal 2016, KUKA’s Executive Board forecast an EBIT margin of more than 5.5% before purchase price allocation for Swisslog and before extraordinary expenses in connection with the Midea takeover. Taking into consideration these influences, KUKA met and even slightly exceeded its forecast with an EBIT margin of 5.6%.

The Robotics division achieved an EBIT of €100.7 million in 2016, slightly surpassing the previous year’s level of €100.2 million by 0.5%.

Systems had an EBIT of €91.3 million in fiscal 2016 and was therefore below the prior-year value of €114.7 million. The EBIT margin fell accordingly from 7.8% to 6.5%. Without the book profit from the sale of HLS and the Tools and Dies business unit in 2015, the EBIT margin would have been 6.9% in 2015.

¹ after Swisslog purchase price allocation and Midea extraordinary effects

At €4.8 million (2015: €-45.9 million) Swisslog saw a considerable improvement in EBIT. This is equivalent to an EBIT margin of 0.8% compared with -7.4% recorded in 2015. Adjusted for the effects of the purchase price allocation of €10.8 million (2015: €58.7 million) the margin was 2.6% (2015: 2.1% or, adjusted, 3.4%).

In keeping with the trend in EBIT, Group EBITDA (earnings before interest, taxes, depreciation and amortization) also fell to €205.3 million (2015: €259.1 million). Write-downs totaling €78.1 million were posted in the period under review (2015: €123.5 million). €22.5 million of this (2015: €25.9 million) was attributable to Robotics, €22.2 million (2015: €21.0 million) to Systems, €23.4 million (2015: €70.4 million) to Swisslog and €10.0 million (2015: €6.2 million) to other areas.

EBITDA was therefore lower for both the Robotics division at €123.2 million (2015: €126.1 million) and the Systems division at €113.5 million (2015: €135.6 million) and higher for Swisslog at €28.2 million (2015: €24.5 million) compared to the previous year. The Group EBITDA margin was 7.0% (2015: 8.7%). The EBITDA margin for Robotics was 12.4% (2015: 13.9%), for Systems 8.1% (2015: 9.2%) and for Swisslog 4.8% (2015: 3.9%). Disregarding the extraordinary effects of the Midea Group takeover bid, Group EBITDA was €233.3 million (2015: €259.1 million) and the Group EBITDA margin was 7.9% (2015: 8.7%).

Financial result further optimized

Net financial expenses amounted to €4.9 million in fiscal 2016. This is an improvement compared with the previous year when the financial result was €-7.4 million.

The interest income amounted to €8.1 million (2015: €8.3 million) and mainly included income from bank deposits, income from short-term liquid assets invested in commercial papers and income from financial leases.

The net balance of foreign exchange gains and losses in connection with financial assets led during the past financial year to an expenditure of €2.1 million (2015: €0.3 million). In the reporting period, interest expenses totaled €13.0 million. Most of this relates to the promissory note loan placed in October 2015 with interest expenses of €3.6 million (2015: €0.8 million) and the net interest expense for pensions of €2.2 million (2015: €2.5 million). Due to the conversions of the convertible bonds undertaken since October 2015 and completed in March 2016, interest expenses on the convertible bond fell from €6.2 million in the previous year to €0.3 million. Expenditure on sureties and guarantees amounted to €1.1 million (2015: €0.7 million). Pursuant to the amendment to the syndicated loan agreement, there were expenses of €1.0 million in order to cover transaction costs.

Earnings before taxes (EBT) amounted to €122.3 million (2015: €125.6 million). The tax expense of KUKA Group totaled €36.1 million in 2016 (2015: €39.3 million). The tax rate amounted to 29.5% and was thus below the previous year (2015: 31.3%).

Proposed dividend of €0.50 per share

Earnings after taxes were positive for the sixth consecutive year and at €86.2 million were almost unchanged on the previous year's figure of €86.3 million. Earnings per share amounted to €2.19 in 2016 (2015: €2.39). This reduction results from the higher number of shares compared with 2015 due to the conversion of the convertible bonds in 2016.

There was also a dilution effect due to the reported conversion of the convertible bonds. Undiluted earnings per share stood at €2.19 (2015: €2.39 undiluted; 2015: €2.35 diluted).

The Executive Board is proposing to the Annual General Meeting that an unchanged dividend of €0.50 per share be paid for fiscal 2016.

Consolidated income statement (condensed)

in € millions	2012	2013	2014	2015	2016
Sales revenues	1,739.2	1,774.5	2,095.7	2,965.9	2,948.9
EBIT	109.8	120.4	141.8	135.6	127.2
EBIT adjusted ¹	109.8	120.4	141.8	135.6	155.2
EBITDA	138.5	158.4	185.3	259.1	205.3
EBITDA adjusted ¹	138.5	158.4	185.3	259.1	233.3
Financial result	-12.8	-20.0	-25.3	-7.4	-4.9
Taxes on income	-34.1	-35.4	-45.2	-39.3	-36.1
Earnings after taxes	55.6	58.3	68.1	86.3	86.2

¹ Extraordinary effect due to the takeover bid by Midea Group

Financial position

Principles and goals of financial management

KUKA Aktiengesellschaft is responsible for the central financial management of all KUKA Group companies. Acquired companies are successively included in the Group's financial management. Group financing and interest rate and currency risk management are controlled centrally via KUKA Aktiengesellschaft. The financing and investment needs of Group companies and hedging transactions for interest rate and currency management are bundled by KUKA Aktiengesellschaft, which concludes the necessary internal and external financial transactions with Group companies and banks. KUKA Aktiengesellschaft performs these tasks on the basis of a uniform planning and reporting system in which risks related to credit, liquidity, interest rates and exchange rates are recorded. The objective of interest rate and currency management is to minimize the risks involved. Only standard derivative financial instruments are used to hedge risk. The hedging transactions are concluded exclusively on the basis of the hedged item or expected transactions. KUKA has issued a standard set of guidelines for all Group companies for the purpose of managing financing risk. As in previous years, the guidelines were continuously reviewed and optimized during the financial year to ensure that they remained up to date and also transferred to the acquired companies.

Group financing and cash pooling

The Group's financing policy is aimed at securing not only sufficient liquidity reserves in the form of liquid assets and non-utilized, committed long-term working capital lines but also sufficient surety and guarantee lines at all times to be able to ensure the operating and strategic financing requirements of the Group companies and also to have sufficient reserves as a buffer against unforeseen events. The financing requirements of the Group companies are calculated on the basis of the multi-year budget and financial projections and monthly rolling liquidity forecasts over twelve months, each of which includes all the relevant companies consolidated in the Group accounts.

Payments received on the basis of operating activities of Group companies represent the Group's most important source of liquidity. KUKA AG's cash management uses the liquidity surpluses of individual Group companies to meet the liquidity requirements of other Group companies. This central, intra-Group cash pooling optimizes the Group's liquidity position and has a positive impact on net interest income.

Components of the financing structure

Promissory note loan

KUKA Aktiengesellschaft issued an unsecured promissory note loan with a total volume of €250.0 million on October 9, 2015. The total volume was placed in two separate tranches. Tranche 1 has a volume of €142.5 million with a term to maturity of five years; tranche 2 has a volume of €107.5 million and a term to maturity of seven years. Repayment shall occur at 100.0%, payable in one sum on maturity of each fixed-term tranche. The promissory note loan carries interest coupons of 1.15% for tranche 1 and 1.61% for tranche 2.

Syndicated loan agreement

As part of a refinancing operation, in April 2015 KUKA AG entered into a syndicated loan agreement ("SFA – Syndicated Facilities Agreement") with an original term to March 30, 2020. This included two extension options each for one year. The first extension option was exercised in 2016 such that the SFA now ends on March 30, 2021. The second extension option available to KUKA would extend the term by a further year.

The SFA includes a surety and guarantee line ("guaranteed credit line") in the amount of €140.0 million and a working capital line ("cash line"), which can also be used for sureties and guarantees, in an original amount of €90.0 million. The syndicated loan agreement is unsecured and contains only the customary equal treatment clauses and negative pledges.

Financial covenants are agreed for the SFA with thresholds for leverage (net financial liabilities/EBITDA) and interest coverage (EBITDA/net interest expense).

The closing of the takeover bid by Midea would have created a change in control under the terms of the SFA and triggered the cancellation rights of the banking consortium. KUKA therefore agreed beforehand with the consortium of banks that the SFA should remain in existence after the completion of the closing of the takeover bid and that the business relations would be continued. In an amendment to the agreement, the consortium of banks waived their entitlement to cancellation.

In the same amendment the volume of the SFA was adjusted to meet the current planning requirements. Since the effective date of the amendment on November 28, 2016, KUKA has a guaranteed credit line of €200.0 million and a working capital line with the same volume of €200.0 million, which can also be used for guarantees as previously.

KUKA was therefore able to increase its liquidity provisions and take into account the increased guaranteed credit requirement due to the higher volume of business. In addition it was possible to adjust the conditions of the SFA to KUKA's improved credit rating and to the better market conditions compared with the time of the last refinancing operation.

Cancellation of the convertible bond

In an announcement on February 18, 2016 KUKA Aktiengesellschaft irrevocably canceled the February and July 2013 convertible bonds as of March 24, 2016 (redemption date). By this date, further convertible bond units with a nominal value of €46.9 million were converted into 1,274,211 shares in the first quarter of 2016. The unconverted bonds with a nominal value of €0.3 million were repurchased from investors together with the interest accrued during the financial year.

Guaranteed credit lines

In addition to the guarantee lines and the cash facilities which can be used for guarantees under the syndicated loan agreement there were also further guarantee line agreements in 2016 to support operating business. These guarantee facilities bilaterally agreed with banks and surety companies outside the syndicated loan agreement amounted as at December 31, 2016 to a commitment volume of €124.0 million (2015: €89.0 million) and in accordance with the rules applicable to the SFA may be utilized in a total volume of up to €100.0 million. None of these guarantee lines contains a change of control clause.

In total at December 31, 2016 KUKA therefore had credit lines to utilize for sureties and guarantees in an amount of €500.0 million (2015: €319.0 million). These were utilized in the amount of €258.1 million (2015: €148.0 million).

Asset-backed securities program

The existing ABS program of €25 million also contains a change of control clause. It is not expected that the receivables purchaser will terminate the program due to the change of control.

KUKA Group's financing requirements are primarily covered by the following available elements:

- 1) The €400.0 million syndicated loan agreement amended in November 2016 with a term extending to March 2021. Cash drawings of up to a volume of €200.0 million are possible under this agreement.
- 2) Bilateral agreements with banks and surety companies for surety and guarantee lines in the amount of €124.0 million (as at December 31, 2016).
- 3) The promissory note loan with a nominal value of €250.0 million issued in October 2015 and maturing in October 2020 and October 2022.
- 4) The ABS program with a financing volume of €25.0 million (as at December 31, 2016).

From the perspective of the Executive Board, the measures taken ensure that KUKA Group has appropriate long-term financing and the necessary leeway to quickly implement important strategic decisions.

Further improved assessment by rating agencies

The stable financial situation is also reflected in the fact that the two rating agencies Moody's and Standard & Poor's have raised the credit rating once again. Standard & Poor's maintained its rating in June 2016 at BB+ (2015: BB+), but raised the outlook from stable to positive. In September 2016 Moody's upgraded its rating from Ba2 (June 2015) to Ba1 and awarded a stable outlook to the share. Early in 2017, Moody's even raised the KUKA Group rating to investment grade and now rates KUKA as Baa3 with a stable outlook.

Consolidated cash flow statement (condensed)

in € millions	2012	2013	2014	2015	2016
Cash earnings	92.4	115.3	181.3	260.8	203.9
Cash flow from current business operations	117.9	221.0	184.7	169.2	-9.6
Cash flow from investment activities	-40.8	-125.6	-356.9	-73.5	-97.2
Free cash flow	77.1	95.4	-172.2	95.7	-106.8

The cash earnings are an indicator derived from the earnings after taxes, adjusted for income taxes, net interest, cash-neutral depreciation on tangible assets, together with other non-cash income and expenses. The figure of €203.9 million in 2016 (2015: €260.8 million) indicates that the company is in an excellent economic position.

With comparable earnings after taxes, the lower amortization of intangible assets compared with the previous year, mainly due to write-downs connected with the purchase price allocation for Swisslog Group, resulted in lower cash earnings.

Cash flow from current business operations of KUKA Group dropped from €169.2 million in 2015 to €-9.6 million in 2016. This decline is primarily attributable to the increase in trade working capital. Overall, trade working capital has developed as follows:

Trade working capital

in € millions	2012	2013	2014	2015	2016
Inventories less advance payments	126.9	133.9	194.1	225.3	223.2
Trade receivables and receivables from construction contracts	340.6	348.6	612.9	658.3	888.9
Trade payables and liabilities from construction contracts	231.7	304.4	522.2	619.0	683.0
Trade working capital	235.8	178.1	284.8	264.6	429.1

As stated, trade working capital increased from €264.6 million in 2015 to €429.1 million. Year-on-year it was primarily receivables which rose. This was firstly due to the numerous orders completed at the end of 2016 for which the payment of the outstanding receivables is not expected until the first quarter of 2017. Secondly there was a sharp rise in receivables from construction contracts. This also reflected the good position in the order backlog of the Systems and Swisslog segments. Inventories less advanced payments at €223.2 million remained at a similar level to the previous year (2015: €225.3 million), reflecting the high level of orders received with accompanying advance procurement measures. Trade payables on construction contracts increased by €64.0 million to €683.0 million.

High level of investment continues

During the 2016 financial year, KUKA again made high investments in the future. In total, the volume of expenditure on intangible and tangible fixed assets amounted to €99.6 million (2015: €107.0 million). This included major capital expenditure in the research and development sector and increased investment in tangible assets. The carrying amount of the company's own development work and internally generated intangible assets totaled €54.0 million (2015: €38.1 million). (For information on the development focuses, see the "Research and development" section, page 30 et seq.).

Investments in intangible assets and property, plant and equipment

in € millions	2012	2013	2014	2015	2016
Group	42.8	74.7	94.3	107.0	99.6
of which Robotics	30.1	30.8	30.4	39.4	29.4
of which Systems	9.6	15.2	28.7	23.5	23.9
of which Swisslog	–	–	–	22.2	20.0
of which others ¹	3.1	28.7	35.2	21.9	26.3

¹ incl. consolidation

Investments in intangible assets amounted to €49.1 million in fiscal 2016 (2015: €30.6 million) and were attributable to rights and assets in an amount of €14.5 million (2015: €11.7 million), internally produced software and development costs in an amount of €20.1 million (2015: €18.9 million) and advances paid of €14.5 million (2015: €0 million).

Investments in tangible assets amounted to €50.5 million in the year under review (2015: €76.4 million) and were attributable to land, property rights and buildings (including buildings on third party land) (2016: €6.3 million; 2015: €11.2 million), technical plant and machinery (2016: €19.5 million; 2015: €19.2 million), other plant/operating and office equipment (2016: €20.2 million; 2015: €30.1 million) and advances paid and construction in progress (2016: €4.5 million; 2015: €15.9 million).

Broken down by division, capital expenditure was as follows in 2016: in the Robotics division, the corresponding figure was €29.4 million (2015: €39.4 million). In addition to the capitalized development work, most of the investments were made in technical equipment and machinery, particularly for the optimization of production, but also for operating and office equipment. The Systems division registered additions of €23.9 million (2015: €23.5 million). Most of the investments were again made in technical equipment and machinery. Investments in the Swisslog division of €20.0 million (2015: €22.2 million) mainly concern investments in internally produced software and development costs to constantly improve the customer software, but primarily in the further development of individual products in the automation solutions for future-oriented warehouse and distribution centers and for hospitals. Investments in the segment "Other" amounted to €26.3 million (2015: €21.9 million) and, in addition to some follow-on investments in the Development and Technology Center in Augsburg completed in 2015, related mostly to advance payments for ongoing internal projects to harmonize, standardize and optimize processes and to introduce global IT platforms.

Spending on acquisitions of consolidated companies and other business units during the current fiscal year and spending on settling open purchase price liabilities from acquisitions in the previous years came to a total of €47.8 million (2015: €44.4 million) and were subdivided as follows:

in € millions	2015	2016
Company acquisitions		
Swisslog Holding AG, Buchs (AG)/Switzerland	17.5	–
Forte Industrial Equipment Systems Inc., Mason, Ohio/USA	11.4	1.6
UTICA Enterprises, Shelby Township, Michigan/USA	6.7	4.1
Reis Group Holding GmbH & Co. KG, Obernburg/Germany	–	30.8
Tecnilab S.p.A., Cuneo/Italy	–	6.0
Other	3.1	3.7
Total	38.7	46.2
Investments accounted for at equity		
Barrett Technology, LLC, Newton, Massachusetts/USA	2.7	–
KBee AG, Munich/Germany	3.0	1.6
Total	5.7	1.6
Total payments	44.4	47.8

The sale of business units in the Aerospace segment in connection with the Midea takeover bid contributed €33.5 million during the fiscal year. The optimization of the investment structure resulted in a total inflow of funds of €47.2 million for KUKA in fiscal 2015.

Negative free cash flow

Cash flow from investment activities (2016: €-97.2 million; 2015: €-73.5 million) along with cash flow from current business operations resulted in a negative free cash flow of €-106.8 million. In the previous year the free cash flow had still been clearly positive at €95.7 million. This development is primarily due to the marked increase in trade working capital.

Negative cash flow from financing activities

At year-end KUKA had a negative cash flow from financing activities amounting to €-26.4 million. This includes dividend payments to shareholders of €0.50 per share (2015: €0.40 per share) making a total of €19.3 million.

In the previous year cash flow from financing activities was still clearly positive at €204.1 million due to the inflows in 2015 from the promissory note loan placed by KUKA for a nominal amount of €250.0 million at an effective interest rate of 1.24% (5-year tranche) and 1.67% (7-year tranche).

Consolidated net liquidity

in € millions	2015	2016
Cash and cash equivalents	496.2	364.2
Current financial liabilities	2.1	1.6
Non-current financial liabilities	294.2	249.6
Group net liquidity	199.9	113.0
Cash and guarantee facilities from Syndicated Senior Facilities Agreement	230.0	400.0
Guarantee facility from banks and surety companies	89.0	124.0
ABS program line	25.0	25.0

KUKA had net liquidity of €113.0 million as at the end of the year (the balance of liquid assets and current and non-current financial liabilities) (2015: €199.9 million). Cash and cash equivalents available to KUKA Group at year-end 2016 totaled €364.2 million (2015: €496.2 million).

Net worth

On the assets side, non-current assets rose to €838.1 million (December 31, 2015: €823.3 million). This increase is mainly due to the investments made during the financial year (please refer to notes on the financial position). Amortization of €10.8 million (2015: €58.7 million) on the purchase price allocation for the Swisslog acquisition had the opposite effect. A value of €257.5 million was recorded for goodwill (December 31, 2015: €254.9 million). The increase of €2.6 million resulted, in addition to the initial recognition of goodwill of €8.2 million for acquisitions during the current year, from disposals of €6.3 million and impairment charges of €1.4 million from exchange rate effects. The rise in tangible assets amounted to €2.2 million.

Amounts totaling €4.2 million were included for investments in associated companies and joint ventures (December 31, 2015: €6.6 million) and reported under "At equity financial assets". Deferred tax assets amounted to €4.8 million (December 31, 2015: €49.2 million), with €9.8 million being attributable to tax losses carried forward (December 31, 2015: €11.2 million).

The value of current assets was €1,705.8 million as at December 31, 2016 (December 31, 2015: €1,558.4 million). This value was impacted by the increases in trade receivables and receivables from construction contracts mentioned above.

Group net worth

in € millions	2012	2013	2014	2015	2016
Balance sheet total	1,137.4	1,377.1	1,979.5	2,381.7	2,543.9
Equity	297.5	379.1	541.1	732.5	840.2
in % of balance sheet total	26.2	27.5	27.3	30.8	33.0
Net liquidity/debt	42.8	146.5	32.6	199.9	113.0

The balance sheet total of KUKA Group rose by €162.2 million from €2,381.7 million as at December 31, 2015 to €2,543.9 million as at December 31, 2016.

Marked increase in equity ratio to 33.0%

Despite the growth of the balance sheet total, KUKA achieved an increase in the equity ratio from 30.8% in the previous year to 33.0%. As well as the net income figure of €86.2 million (2015: €86.3 million), the conversion of the remaining convertible bonds into new KUKA shares also contributed to this development. The conversions resulted in an increase of €44.6 million in equity. Differences due to currency translation, particularly from the Swiss franc, US dollar, Brazilian real and Chinese renminbi, have also had a positive effect of €8.1 million on equity. Actuarial losses from pension accounting, including the associated deferred taxes, totaled €8.5 million. Payment of the 2015 dividend to the shareholders of KUKA Aktiengesellschaft reduced equity capital by €19.3 million. Minority interests in equity capital were reduced by the share in the total result of €-0.4 million and by the successive acquisition of the remaining 49.0% of outstanding shares in Faude Automatisierungstechnik GmbH by €0.6 million to an amount of €-0.3 million (2015: €-0.5 million). Overall, equity capital rose by €107.7 million or 14.7% to €840.2 million as at December 31, 2016.

The non-current financial liabilities primarily relate to the promissory note loan placed in October 2015 with a nominal value of €250.0 million. The figure for the previous year also contained the outstanding convertible bonds with a nominal value of €47.2 million. Current financial liabilities included the utilization of cash lines by a foreign subsidiary and interest accruals for the promissory note loan (in the previous year interest accruals for the convertible bond were also recorded here).

Current liabilities increased from €1,160.6 million at December 31, 2015 to €1,258.1 million at December 31, 2016. The change in the liability-side trade working capital referred to above was the main reason for this. Other provisions (€157.9 million) and other liabilities and accruals (€280.0 million) are at approximately the same level as the previous year (2015: €433.6 million). Other liabilities include personnel costs of €142.1 million (2015: €134.6 million) and the contingent purchase price liabilities amounting to €23.1 million (2015: €58.5 million). These mainly relate to the acquisitions of Reis Group and UTICA Enterprises, Shelby Township, Michigan, USA in previous fiscal years.

Group assets and financial structure

in € millions	2015	2016
Current assets	1,558.4	1,705.8
Non-current assets	823.3	838.1
Assets	2,381.7	2,543.9
Current liabilities	1,160.6	1,258.1
Non-current liabilities	488.6	445.6
Equity	732.5	840.2
Liabilities	2,381.7	2,543.9

Increase in working capital and capital employed due to business performance

During fiscal 2016 the focus of KUKA Group was again on active management of the working capital and further optimization of supplier-side payment terms. Nevertheless due to the order situation and business performance, a considerable rise in working capital requirements at the end of 2016 could not be avoided. While a negative working capital of €-63.6 million was recorded in the previous year, the value rose to €118.4 million. This meant that in fiscal 2016 the current business operations had to be financed from the available net liquidity as well as from customer prepayments and supplier liabilities. In terms of the individual divisions, during the current reporting period both Robotics and Systems had a positive working capital (€115.5 million and €70.4 million in 2016 compared with €86.9 million and €-124.5 million in 2015 respectively) whereas Swisslog reported a negative working capital (2016: €-16.6 million; 2015: €5.3 million).

Return on capital employed (ROCE)

An important key figure of KUKA Group is the return on capital employed (ROCE). This indicator describes how effectively and profitably KUKA uses its capital employed.

The capital employed is calculated as the average of capital employed at the beginning and end of the financial year. On average, KUKA Group's capital employed in 2016 and 2015 amounted to €783.0 million and €676.8 million respectively. The ROCE declined from 20.0% in 2015 to 16.2% in 2016.

The ROCE of the individual divisions was as follows: with average capital employed of €194.9 million (2015: €177.1 million) the Robotics division generated a ROCE of 51.7% and was thus unable to fully match the previous year's figure of 56.6%. The Systems division achieved a ROCE of 42.8% (2015: 87.9%) on an average capital employed of €213.1 million (2015: €130.5 million). With average capital employed of €317.4 million (2015: €315.9 million) the ROCE in the Swisslog division saw a significant improvement to 1.5% compared with the 2015 figure of -14.5%. Before amortization from purchase price allocation, Swisslog had a ROCE of 4.9% (2015: 4.1%).

Return on capital employed (ROCE)

in % of capital employed	2012	2013	2014	2015	2016
Group ¹	32.3	36.9	28.8	20.0	16.2
of which Robotics	57.2	49.6	53.1	56.6	51.7
of which Systems	23.8	43.0	67.9	87.9	42.8
of which Swisslog ²	-	-	-	-14.5	1.5

¹ incl. consolidation

² incl. amortization from purchase price allocation

Notes to the financial statements of KUKA Aktiengesellschaft

KUKA Aktiengesellschaft acts as the Group's management holding company with central management responsibilities such as accounting and controlling, finance, human resources, legal, IT and financial communications. Its financial position is determined primarily by the activities of its subsidiaries, as illustrated by the direct allocation of the management companies of the Robotics division (KUKA Roboter GmbH), Systems division (KUKA Systems GmbH) and Swisslog division (Swisslog Holding AG).

KUKA Aktiengesellschaft prepares its annual financial statements in accordance with the provisions of the German Commercial Code (HGB) and the German Stock Corporation Act (AktG). The amendments arising from the Accounting Directive Implementation Act (BilRUG) for the individual financial statements of KUKA Aktiengesellschaft were implemented accordingly. This has led to changes in presentation, especially in the income statement (primarily regarding the sales revenues). To improve comparability, the corresponding changes in the following table were also applied to the comparative period. As a result of an amendment to section 253 of the German Commercial Code (HGB) there was a significant change in the valuation of pension commitments. With effect from 2016 the average 10-year German central bank interest rate is to be used for discounting instead of the 7-year interest rate. As a result, the value of the pension provisions recognized decreases. The difference of €0.8 million (including the payout blocks of subsidiaries with a profit transfer agreement) is barred from distribution.

The company is registered in the commercial register of the Augsburg district court under HRB 22709 and its registered office is in Augsburg.

The financial statements of KUKA Aktiengesellschaft are published in the electronic Federal Gazette (Bundesanzeiger) and are also available on the company's website www.kuka.com.

Income statement of KUKA Aktiengesellschaft (HGB)

in € millions	2015	2016
Sales revenues	58.9	77.4
Other company-produced and capitalized assets	1.2	2.0
Other operating income	50.0	21.1
Cost of materials	-29.1	-40.8
Personnel expense	-38.8	-44.8
Depreciation and amortization of tangible and intangible assets	-6.3	-10.1
Other operating expenses	-57.7	-64.5
Income from participations	149.7	174.6
Other interest and similar income	5.2	6.3
Interest and similar expenses	-9.1	-7.0
Taxes on income	-8.2	-2.2
Net profit	115.8	112.0
Profit carryforward from the previous year	43.0	31.6
Transfer to retained earnings	-57.9	-56.0
Balance sheet profit	100.9	87.6

Balance sheet of KUKA Aktiengesellschaft (HGB)

Assets in € millions	2015	2016
Fixed assets		
Intangible assets	2.1	20.1
Tangible assets	88.4	87.9
Financial investments	469.3	492.9
	559.8	600.9
Current assets		
Receivables from affiliated companies	233.8	414.6
Other receivables and assets	5.6	4.1
	239.4	418.7
Cash and cash equivalents	330.2	150.4
	569.6	569.1
Prepaid expenses	0.6	1.4
	1,130.0	1,171.4

	2015	2016
Liabilities in € millions		
Equity		
Subscribed capital	100.1	103.4
Capital reserve	262.2	305.8
Other retained earnings	148.2	254.3
Balance sheet profit	100.9	87.6
	611.4	751.1
Provisions		
Pension provisions	11.7	11.5
Provisions for taxes	15.0	8.8
Other provisions	31.2	45.6
	57.9	65.9
Liabilities		
Bonds	47.2	-
Liabilities due to banks	251.1	250.9
Trade payables	11.1	5.6
Accounts payable to affiliated companies	147.4	83.8
Liabilities to provident funds	2.6	2.6
Other liabilities	1.3	11.5
	460.7	354.4
	1,130.0	1,171.4

Results of operations of KUKA Aktiengesellschaft

The earnings of KUKA Aktiengesellschaft are determined primarily by the earnings of its subsidiaries, its financing activities and the expenses and income relating to the company's holding function. Income before taxes amounted to €114.2 million and was therefore below the previous year's result (2015: €124.0 million).

Sales revenues (2016: €77.4 million; 2015: €58.9 million) mainly include cost allocations (2016: €54.9 million; 2015: €40.1 million), direct cost transfers, for example from facility management (2016: €13.9 million; 2015: €13.0 million) and income from the rental of buildings to KUKA Group companies (2016: €8.4 million; 2015: €5.5 million). The associated expenses are reported as cost of materials and services purchased. These amounted to €40.8 million during the year and to €29.1 million in the previous year.

Other operating income mainly includes currency translation gains, particularly from the US dollar and the Brazilian real, which were recognized in an amount of €15.6 million (2015: €34.7 million). The rise in other operating expenses results mainly from consultancy services in connection with the acquisition of a majority shareholding by Midea Group. There were also currency translation losses amounting to €22.5 million (2015: €34.2 million).

The increase in personnel expenditure from €38.8 million to €44.8 million is attributable not only to the increase in the number of employees but also to higher expenses for variable remuneration components, partly as a result of the increase in the share price. At this juncture it should be noted that there were additional unscheduled personnel costs for the existing phantom share programs for Executive Board members and senior management which arose in connection with the Midea takeover bid. The company had 512 employees on the balance sheet date (2015: 352 employees). This rise was mainly due to the takeover of the central IT department at the Augsburg site by KUKA Aktiengesellschaft.

Income from participations amounted to €174.6 million (2015: €149.7 million) and was therefore considerably above the previous year's value. This is in particular due to the higher dividend payment of the US subsidiary in the year under review (2016: €119.7 million; 2015: €40.6 million). Earnings contributions from the German companies allocated to KUKA Aktiengesellschaft via profit and loss transfer agreements are €54.9 million (2015: €109.1 million).

The net interest result amounted to €-0.7 million, which was considerably better than the previous year's value of €-3.9 million. This reduction is primarily due to the discontinuation of interest on the convertible bond (2016: €0.1 million; 2015: €2.2 million). Due to the stronger liquidity supply for subsidiaries, finance interest credited or charged to subsidiaries was higher compared to the previous year. In the previous year KUKA Aktiengesellschaft and its associated companies posted net interest income of €4.5 million – the value this financial year was €5.8 million.

KUKA Aktiengesellschaft as the controlling company of the German consolidated tax group recognizes the income taxes of the tax group in the income statement in an amount of €2.2 million (2015: €8.2 million). The development of income taxes depends on tax-deductible loss carryforwards, tax arrears and credits for past assessment periods and largely tax-free investment income among other factors.

Overall, net income of KUKA Aktiengesellschaft amounted to €112.0 million (2015: €115.8 million). After the transfer to revenue reserves and offsetting against the profit carried forward the balance sheet profit totals €87.6 million for fiscal 2016 (2015: €100.9 million).

Financial position of KUKA Aktiengesellschaft

One of KUKA Aktiengesellschaft's most important tasks is to provide funds and guarantees for its subsidiaries' current operations. The resources used for external finance such as the promissory note loan and the syndicated loan agreement are described in detail in the section on the financial position of KUKA Group.

KUKA Aktiengesellschaft's financing role is reflected in its receivables from and liabilities to affiliated companies, which are predominantly the result of cash pooling accounts with subsidiaries and loans provided. The balance of these receivables and liabilities was a net receivables figure of €330.8 million (2015: €86.4 million). This rise in liquidity requirements by subsidiary companies was attributable, in addition to the result transfers during the financial year, to the considerable increase in the working capital due to the good course of business, in particular for the subsidiaries participating in the cash pooling arrangements.

Overall, the liquid assets of KUKA Aktiengesellschaft decreased from €330.2 million to €150.4 million. Financial liabilities amounted to €250.9 million on the balance sheet date compared with €298.3 million in the previous year. This decrease also reflects the conversion of the convertible bonds in the first quarter of 2016.

Net assets of KUKA Aktiengesellschaft

The net assets of KUKA Aktiengesellschaft are impacted by the management of its equity investments as well as the way in which it executes its management function for the companies in KUKA Group. For information on receivables from and liabilities to affiliated companies and financial items, please refer to the information on KUKA Aktiengesellschaft's financial position.

Capital expenditure on intangible and tangible fixed assets amounting to €26.1 million (2015: €22.6 million) was accompanied by depreciation, amortization and write-downs amounting to €10.1 million (2015: €6.3 million). Investments during the financial year were mainly concentrated on IT-based projects to harmonize, standardize and optimize processes. KUKA Aktiengesellschaft is piloting these and will give strong support to the global roll-out in the coming years. KUKA Aktiengesellschaft's direct equity investments in its subsidiaries are reported under financial assets. Apart from a further milestone-based payment to KBee AG, Munich, additions during the financial year mainly included the now completed acquisition of the remaining shares in Reis Group. A payment of around €9.2 million was made in January 2017 such that the corresponding liability at the balance sheet date is shown under other liabilities.

Earnings for the financial year reflect the changes in equity as well as the remaining bond conversions described above. Dividend payments totaling €19.3 million for the 2015 financial year were deducted from equity capital. The equity ratio of KUKA Aktiengesellschaft amounted to 64.1% on December 31, 2016 (2015: 54.1%).

The €14.4 million rise in other provisions results mainly from the expenses connected with the acquisition of a majority shareholding by Midea Group.

The net impact of these changes on the balance sheet total of KUKA Aktiengesellschaft was an increase of €41.4 million to €1,171.4 million compared to the reporting date of the previous year.

Non-financial key performance indicators

Sustainability

Sustainability in KUKA Group

Sustainability is anchored in KUKA's corporate culture. As a forward-looking company, KUKA encourages sustainability in all its field of activity – for people, products, but also as regards society and the environment.

Working environment and health

As an automation group which is experiencing growth on a global scale, KUKA is reliant on a qualified, committed and efficient workforce. They form the basis of the company's success. To meet the rising demands and perform well, employees need a good working environment. KUKA therefore values a working environment which enables employees to promote their own health and work flexibly. For example, employees can work flextime hours and to some extent also in their own homes. The children's daycare center at the Augsburg site, sponsored by the non-profit association Orange Care e. V., a kid's holiday club and other benefits such as a weekly laundry service are designed to promote the compatibility of work and family life.

Within the company's health promotion scheme, KUKA offers its employees different focal themes each year. These mainly address the major causes of various lifestyle afflictions such as lack of exercise, incorrect diet, excess weight and stress. Sporting activities such as taking part in the Augsburg corporate challenge run are part of the program as is preventive healthcare. In the year under review, the Corporate Medical Service unit was restructured and preventive occupational healthcare was enhanced. A wide-ranging vaccination campaign was organized, for example, based on travel-related medical counselling. Moreover the outpatient and medical emergency treatment services were revised and improved.

Key social figures

	2015	2016
Number of employees (Dec. 31)	12,300	13,188
of which apprentices	348	305
Average length of service (years)	7.6	7.9
Sick leave rate in %	3.2	3.7
Fluctuation in %	9.6	10.3
Accidents per 1,000 employees (Germany)	9.8 ¹	11.5 ²

¹ Excl. Obernburg

² Incl. Obernburg

In the year under review, the Group-wide sick leave rate rose slightly from 3.2% to 3.7%. Compared with other companies in the same industry, this figure is relatively low. The average length of service was 7.9 years (2015: 7.6 years). This figure remains relatively stable and is similar to that found in other companies.

At 10.3%, staff turnover (fluctuation) appears to be relatively high for industry standards. However, this figure includes not only those leaving the company for other employment but also all internal transfers among the companies of KUKA Group.

Even though the workload at KUKA is high in comparison with other companies in the sector, the number of accidents reported is very low. In 2016, 11.5 accidents were recorded for every 1,000 employees. KUKA constantly endeavors to improve work safety so as to reduce the number of accidents further.

Details of the workforce and human resources policy can be found in the "Employees" section from page 54 on.

Orange Care e. V. promotes assistance for young people and families

KUKA colleagues accept social responsibility and get involved in the work of Orange Care e. V. This is an association set up by KUKA colleagues with the objective of supporting people in need, especially through the provision of assistance for young people and families. For instance, it promoted the "füreinanderda" (to be there for each other) project organized by the Prisma youth and family support scheme. Part of this project involved Orange Care providing financial support for shared activities for single mothers. This made it possible to organize a trip to an exhibition on the Vikings, for example. The organization also helped refugees. It helped a refugee assistance association in the Augsburg area acquire computers as a way of aiding the search for jobs and housing, these being the main requirements for successful integration. The Bavarian bone marrow donor campaign and St. Anna high school in Augsburg have been supporting people with leukemia by encouraging potential donors to register for marrow typing. With the campaign entitled "Anna typisiert" (Anna registers for typing) the association was bearing part of the expenses of the marketing measures for this important project. The association has also provided financial support for the therapeutic assistance of children and young people in the "Ziegelhof" project of the Martinschule, a school in Augsburg. This project deals with therapies involving animals. For example, the children were able to try out being sheep trainers, lama whisperers, dog walkers, rabbit tamers and donkey drovers. Orange Care has also provided a regular contribution to the financial support of Klinik Clowns e. V., which can be used by the clowns involved to cover their travel, material and fees. Members of Klinik Clowns visit the children's ward at the Josefinum Clinic in Augsburg for several hours each week. The association has also organized a furniture flea market and from the revenue has given support to the projects mentioned above, amongst others.

Orange Care is also the sponsor of the daycare center on the KUKA site in Augsburg where there are a total of 30 places for children less than three years old.

Social engagement – apprentices at KUKA

The KUKA training center welcomed a class of young refugees to KUKA during the year under review to give them an impression of day-to-day employment and the occupations for which there are apprenticeships. KUKA also issued invitations to Girls' Day 2016 with the idea of getting girls interested in taking up technical and industrial occupations in mechanical and electrical engineering, mechatronics and machining.

Corporate responsibility action week

In September 2016, KUKA participated in the action week on corporate responsibility instigated by the German Engineering Federation VDMA. During this week, the apprentices supported social institutions such as the food bank Augsburgener Tafel e.V., the charitable department store Sozialkaufhaus Augsburg, and retirement homes.

KUKA is a member of Blue Competence

Blue Competence is the sustainability initiative of the VDMA and the European mechanical and systems engineering platform for issues relating to sustainability. KUKA has committed itself to compliance with the Blue Competence codex. Within the scope of this initiative, KUKA participated in the corporate responsibility action week.

KUKA is also a member of the Chamber of Industry and Commerce and the International Federation of Robotics (IFR). Both organizations have special working groups dealing with the topics of energy efficiency and sustainability.

Safe, flexible and productive

The demographic shift and the changes in the working and living environment have an impact on employee performance; this calls for forward-looking and sustainable solutions that help maintain health. Operations that are deemed not to be ergonomic have been automated in order to reduce the physical stresses on production employees. For example, some body assembly tasks were automated during the year under review. Production employees are now supported by a KR AGILUS when applying surface sealants. This ensures a high level of process reliability and reduces the risks to employee health. Employees are also offered training and upskilling, so as to enhance employee flexibility and minimize one-sided physical stresses. Certain logistics activities such as the transportation of completed robots to the calibration station have also been automated to reduce the burdens on employees and allow them to work on more challenging tasks.

Sustainable site concept in Augsburg

The establishment of the Development and Technology Center (DTC) has laid the foundation for the site concept finalized during 2016. This concept sees the site being developed still further in a number of stages which will lead to modern, flexible and dynamic employment. These include new production, administration and development premises, a training center, a medical center and a garage.

KUKA will continue to implement innovative environmental and energy concepts for all new construction, expansion and modernization projects at the Augsburg site.

Promoting excellence in sports and culture

KUKA promotes top performance in sports and culture. This raises brand awareness for KUKA and is also a way for KUKA to take social responsibility. KUKA concentrates on local projects at its own locations. For instance, KUKA has supported the Bundesliga soccer team FC Augsburg and the first-division ice hockey team Augsburg Panthers for years. Cultural institutions in Augsburg such as the Textile and Industry Museum and specific art collections are also sponsored.

Research partnerships to promote sustainability

KUKA is a partner in EU-funded projects that promote research activities in the field of sustainable, innovative technologies:

AREUS, an EU-funded project

During 2014 – 2016, KUKA was a partner in the European combined research project "AREUS – Automation and Robotics for European Sustainable Manufacturing" which has now been completed successfully. Together with research partners from industry and science, KUKA advanced the development of energy-efficient robot-based solutions for the factories of the future. Optimized processes for robot movement were developed, affecting both the individual robot and groups formed of several robots. The power supply for the robot-based test installations was converted to direct current as a prototype development in order to collect initial experience for future regenerative power supplies and to allow the energy requirement in a system to be distributed better and for braking energy to be recovered. The new concepts were tested in a real production scenario at Daimler, a project partner. On completion of the project, the findings were presented at two trade fairs (ICRA 2016, Stockholm and Automatica 2016, Munich). This included presentation of a new form of energy-efficient path planning which can achieve savings of up to 30% in energy consumption and up to 60% in the peak demand for energy supply, depending on the type of task.

euRobotics AISBL

The European non-profit organization euRobotics AISBL (association internationale sans but lucratif) has agreed on a public-private partnership (PPP) with the European Commission for robotics in Europe. Its research and innovation program is receiving more than €700 million funding in 2014 – 2020. The sustainability targets are outlined in a joint road map. The development of sustainable industrial production methods is one of the objectives. See the "Research and development" section starting on page 30 for more information.

EFFRA

KUKA is also involved in a partnership with EFFRA (European Factories of the Future Research Association). Members make important contributions that influence the development of sustainable production and manufacturing processes, as for example in the saving of materials and reduction of waste (Road Map 2014 to 2020). KUKA's role is to advance key topics in robot-based automation.

Sustainability and energy efficiency in friction welding

As well as aiming to improve welding processes and quality, KUKA focuses on optimizing energy consumption in particular. During the previous year KUKA had already launched the new MagnetArc power source, MagnetAr 620A, which uses up to 20% less energy, and this was installed in further welding systems during the year under review. The Genius friction welding machine was also equipped with a servo-controlled hydraulic system. This means that the hydraulic performance can be adapted to the actual demand, thus avoiding unnecessary losses.

Energy optimization in the press shop

To reduce energy consumption by fast trimming presses, KUKA Industries also optimized the hydraulic drive when developing the new Dialog IV series. Through the optional use of a frequency inverter, the drive power of the hydraulic unit is matched to the required mechanical power. On the basis of the process cycle, the required hydraulic power and energy consumption can be determined beforehand by means of an amortization calculator. This allows a cost/benefit analysis to be made.

KUKA showcases multi-functional cell at Augsburg Innovation Park – production of first test components for Ariane 6 booster

With reference to sustainability, lightweight construction is a key topic for the future of industrial manufacturing. Within the scope of a project at the Augsburg Innovation Park, experts from industry and the scientific community are working on the industrialization of carbon-reinforced components and taking human-robot interaction to the next level.

In collaboration with the German Aerospace Center (DLR), KUKA has been involved for years in researching and developing innovative processes and automation solutions. Industrial-scale production processes with lightweight materials are developed at the new location for aerospace applications. KUKA and the DLR installed a multi-functional cell (MFC) together that is 32.5 m long and 16 m wide. This enables aerospace research to be carried out on large components of lightweight materials on an industrial scale.

Within the Koffer (Kosten Optimierter Faserverbund Feststoff Raketentmotor – cost-optimized composite solid rocket motor) research project a wrapping and layup installation was incorporated into the MFC, enabling a first test component for booster housings on Ariane 6 to be built using a new fiber composite technology. This new technology was implemented with a CAD/CAM process chain and a Siemens machine tool controller. It was thus possible for the robots of the KR QUANTEC series to be controlled directly via the KUKA.CNC Sinumerik interface. The project was successfully completed at the end of 2016.

KUKA partners with MAI Carbon – MAI ZPR research project

KUKA is active in the leading-edge cluster MAI Carbon. The cluster in the Munich-Augsburg-Ingolstadt triangle is directing its efforts toward developing carbon fiber-reinforced plastics (CFRP) technology for a variety of sectors in Germany by the year 2020. In the year under review the MAI ZPR project on CFRP machining via accurate robot processing sponsored by the Federal Ministry of Education and Research (BMBF) was successfully completed. Alongside partners from industry and research, with KUKA acting as project coordinator, manufacturing technologies using classic industrial robotics took a significant step forward.

The benefits for KUKA include technology modules to increase the precision of robot path processes and the use of integrated CAD/CAM process chains. The aim is also to achieve sustainable development in this business segment via technology transfer to other segments in addition to fiber composites. A robot test cell for the flexible processing of large components on an industrial scale is available for customer trials and is used for other technological developments.

Energy efficiency in systems engineering

The catalog of measures drawn up by KUKA for energy-efficient production represents a guideline which is used for new systems. Quantitative evaluation of the measures is already possible during the planning phase of a system using the KUKA-produced calculation tool for energy and media consumption. KUKA has helped its customers in this way with achieving sustainable production. This approach can also be applied to existing facilities, meaning that sustainable production is also ensured in practice. For this to happen, consumption must be checked continuously and optimized as necessary. With these solutions the energy consumption can be recorded during planning as well as during subsequent operation, after which it can be compared with average values stored in the calculation tool. When the calculation tool reveals potential for optimization, KUKA offers to optimize energy consumption. A first project has already been carried out in which our trained specialists optimized an existing system on the basis of this catalog of measures.

Recycling and retooling

The recycling concept for KUKA robots comprises a number of different aspects, including not just proper disposal and sustainable utilization. KUKA also focuses on recyclable materials as early as the parts selection phase.

KUKA offers customers refurbishing services for used robots, which can then be returned to customers for productive use (retooling). Ideas for replacing or optimizing components or giving robots a new coat of paint are discussed with the customer on a case-by-case basis. It is also possible to rent robots in order to test them or for short-term operation. As well as robots, used presses, tilt-turn positioners and friction welding machines are also available.

KUKA offers its customers a return program for robots that are no longer in use. The used robots are refurbished or retooled to meet new requirements. Then they are available again for purchase as used robots. KUKA uses environmentally compatible methods to disassemble and dispose of robots that can no longer be refurbished. All of KUKA's recycling partners must undergo a strict confirmation process.

CO₂ emissions greatly reduced

CO₂ emissions have fallen steeply since the previous year. Their value was 2.2 (t/employee), which was 16% lower than the previous year's level (2015: 2.6). This reduction is largely due to the changeover from fossil resources to district heating at the Augsburg site. The reduced consumption of thermal energy and electricity also results from this changeover. The consumption of thermal energy was 85.88 kWh/m², which was 10% lower than the previous year's level (2015: 94.95 kWh/m²). Power consumption fell by 4% from the year before (3,921.80 kWh/employee), reaching a value of 3,767.22 kWh/employee. Water consumption is relatively low overall and plays a less important role here because water is only available for normal daily use, with production only requiring a fraction of all the water consumed. Consumption of water during the year under review was 9,537.4 l/employee at the Augsburg site.

In switching over to district heating at the Augsburg site as early as September 2015, the stage was set for an energy-efficient, environmentally friendly and future-proof energy supply. The environmental impact from the increased use of the site is thus steadily being reduced and the requirements of the latest version of the Energy Saving Ordinance (EnEV) for energy efficiency for new and existing structures have been fulfilled.

Strategic energy targets 2020

KUKA is committed to ensuring all the resources it uses are handled in a sustainable manner. To comply with this commitment, the 2020 strategic energy targets were defined in the year under review and declared binding:

- › Reduction of energy consumption per unit of revenue by 7.5% in Germany by 2020 compared with the baseline for energy consumption (December 31, 2014)
- › Reduction of CO₂ emissions per unit of revenue by 20% in Germany by 2020 compared with the baseline for energy consumption (December 31, 2014)
- › Raising of energy awareness and employee commitment through at least half-yearly campaigns/information
- › Expansion of energy consumption recording and analysis for each site with at least a quarterly presentation of suitable Energy Performance Indicators (EnPI).

Certifications

At the sites in Germany as well as the global sites, KUKA holds numerous certificates which are issued and monitored by recognized, accredited certification institutions at regular intervals. ISO 9001, now the basic standard for a quality management system, should be mentioned in this context, on which VDA 6.4, the supplementary standard of the automotive industry, is based. Furthermore, management systems for the topics of environmental protection, occupational safety and energy have been certified with the ISO standards 14001, 18001 and 50001.

KUKA is certified in accordance with ISO 50001 throughout Germany

In the year under review, KUKA introduced a Group-wide energy management system which has been certified by an accredited, independent inspection authority in several certification audits as being in conformity with the requirements of ISO 50001. The figures taken from 2014 were used as the basis for the energy evaluation. KUKA takes its guidance from the energy targets of the German Government and the EU. The efforts related to introduction of the energy management system supplement KUKA's existing environmental management system. Corresponding synergetic effects were achieved in the audits.

Key ecology figures

	2015	2016
Number of locations worldwide	66	97
of which ISO 9001 certified	39	42
of which ISO 14001 certified	13	20
of which ISO 50001 certified ¹	–	20
Consumption (Augsburg site)		
Electric power (kWh)/employee	3,921.80	3,767.22
Heat (kWh)/m ² heated area	94.95	85.88
Water (l)/employee	7,160.7	9,537.4
CO ₂ (t)/employee	2.6	2.2

¹ Throughout Germany

KUKA is certified in accordance with VDA 6.4 at the relevant sites

As a supplier to the automotive industry, product reliability and safety are the number one priority. The VDA 6.4 certification documents that processes have been implemented within the company to ensure that customers can rely on the high quality of their machines, systems, tools or inspection equipment from KUKA. One important aspect here is the efficiency of processes. The certificate is a supplement to ISO 9001.

KUKA participates in Carbon Disclosure Project

KUKA Aktiengesellschaft has been part of the Carbon Disclosure Project since 2008. This organization publishes information on the life-cycle assessments of listed companies and on business prospects for sustainable products once a year. The Carbon Disclosure Project is supported by a number of investor groups (www.cdproject.net). During 2016, in addition to Carbon Disclosure, KUKA also participated in various ratings relevant to sustainability, including those conducted by EIRIS and MSCI.

Further information can be found on our website www.kuka.com under "Guidelines for health, safety, sustainability and quality".

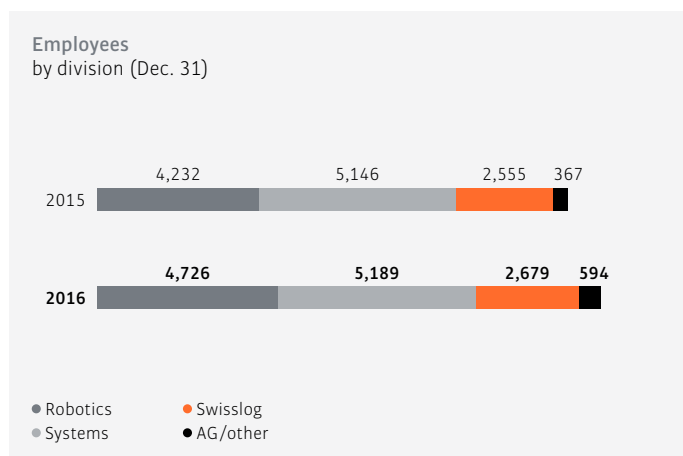
Employees

Global growth of KUKA Group

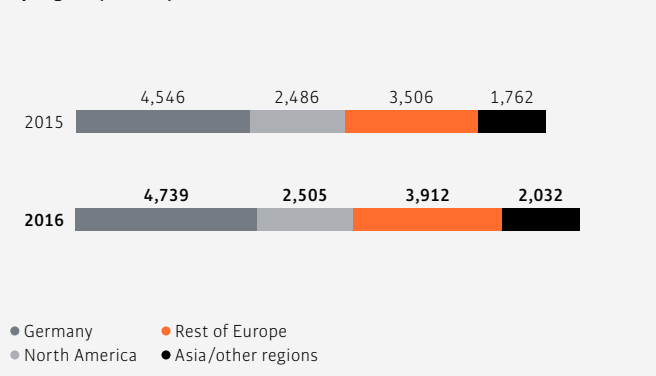
KUKA is transforming into a global group and operates in an international and dynamic competitive environment. As part of Industrie 4.0, KUKA is on a growth path worldwide as a technology leader with its solutions for the digitization of production. The number of employees increased in the year under review, primarily due to growth in the strategically important regions of Asia and Europe. The Group also continued to work on establishing the shared values and leadership principles relating to a consistent management and corporate culture. The personnel development team was selectively expanded and the work was focused on talent and cultural development. KUKA employees developed measures within orangeWIN (WIN standing for Women in Network) to pursue diversity within the Group and to promote the advancement of women. KUKA is also making itself more attractive as an employer by means of employer branding measures, as well as offering high-quality vocational training and a wide range of continuous professional development courses and cooperating with renowned universities. The focus is also on combining work and family life.

Significant increase in personnel – Global presence enhanced

In the year under review, the Group's workforce has risen by 7.2% from a total of 12,300 at the end of 2015 to 13,188 at the end of 2016. Personnel has been increased particularly in the strategically important regions of Asia, primarily in China, and Europe. The Robotics division recorded the greatest growth with a rise of 11.7% to 4,726 employees (2015: 4,232). The Systems division increased its workforce in the year under review by 0.8% from 5,146 to 5,188. The number of Swisslog employees rose by 4.9% from 2,555 (2015) to 2,679 (2016).



Employees by region (Dec. 31)



Stable age structure

At 40.4 years, the average employee age throughout the Group was around the level of the previous year (2015: 40.7 years). 34 employees were honored for 25 years of seniority during the year under review, while three employees celebrated their 40th anniversary of company seniority.

Vocational training at a high level

At the end of 2016, KUKA Group was employing a total of 305 apprentices (FTE) (2015: 348). The process of centralizing apprentice training at KUKA Aktiengesellschaft, which was carried out in 2013, has proven to be a success. This ensures that apprentices are given more opportunities for their own development and teaches them to think and act globally on a Group-wide scale. KUKA attaches great importance to familiarizing apprentices with the internationalization strategy of the Group at an early stage. Apprentices gain experience abroad at other KUKA locations each year such as, for example, company sites in China and the USA. KUKA continues to maintain a high standard in the quality of training and the level of performance. This is repeatedly demonstrated by KUKA apprentice graduates finishing best in their year in their respective training occupation. In the year under review, IHK Schwaben (the Swabian Chamber of Industry and Commerce) honored two apprentices as the best in their year for the occupation of electronics technician for automation technology. 17 apprentices completed their examinations prematurely in summer 2016 – with an average grade of 1.62.

Wide range of training and further education options

KUKA Group offers a variety of training programs covering both technical and commercial occupations:

- > Industrial mechanic and lathe/milling machine operator
- > Mechatronics technician
- > Electronics technician for automation technology
- > Industrial clerk
- > IT specialist
- > Technical product designer
- > Warehouse logistics specialist
- > Specialist for forwarding and logistics services

The share of female apprentices in technical professions has remained constant over the last few years at around 20%. This percentage is expected to increase, in particular thanks to the company's participation in the annual Girls' Day program, the offer of introductory apprenticeships for girls and cooperative partnerships with girls' schools. During the year under review, the company also intensified its contacts with schools in the region. Students at all forms of secondary schools can now learn more about work life at KUKA in a week-long work experience placement. Around 130 students took advantage of this opportunity at the company's site in Augsburg in 2016. Students were also given the chance to learn more about the company's training center on tours of the plant and during many other regional activity days.

In addition to the traditional apprenticeships, KUKA offers a dual, training-integrated degree course at the University of Augsburg with the aim of gaining a Bachelor's degree. In addition to the dual integrated study course for mechanical engineering, mechatronics and electrical engineering, the disciplines of business administration, information technology, technical information systems and business information systems are also available to choose from.

KUKA attaches great importance to the qualified advanced training of employees. Training sessions and workshops were carried out in personal development and in team and organizational development as part of internal training measures. All standard courses, such as computer and language courses, specific professional courses from the fields of sales, purchasing, business administration, strategic implementation and project management, are offered by KUKA Academy along with seminars for leadership, communication and change management. In 2016, a total of 3,387 employees took part in 125 seminars and 49 language groups at the Augsburg and Obernburg locations. The training portfolio and administration of KUKA Academy has been managed in Augsburg using a modern, user-friendly learning management system since the start of 2016, which is available to every employee on an e-self service basis. The global roll-out of this system has already been started.

Cooperative partnerships with universities around the world

KUKA has partnerships with universities all over the world, including Tongji University in Shanghai and TU Munich, and works together with renowned universities on a number of international research and development projects. The company also has close contacts in the region with the universities in Augsburg and Kempten. During the year under review, KUKA attended numerous university contact fairs and was the principal sponsor of the "Pyramid" fair in Augsburg. Pyramid is designed to establish contacts between companies and young professionals.

KUKA values and leadership programs

Work was continued on establishing the shared KUKA values and leadership principles relating to a consistent Group-wide management and corporate culture in the period under review. The personnel development team was selectively expanded and the work was focused on talent and cultural development. The leadership principles were linked to the head, hand and heart symbols in order to create a holistic reference for all employees. Internal workshops were launched for all employees and executives in relation to cultural development and strengthening with the aim of further consolidating the shared understanding of KUKA values and principles worldwide.

In addition to the programs for new executives, additional Group-wide leadership, team development and team strengthening programs and change management programs were designed and introduced. These programs were established for all management levels and focus on the successful implementation of the corporate strategy based on values. They support the executives worldwide in implementing changes positively, communicating and creating corresponding framework conditions in new structures of an agile and digital company on a collaborative partnership basis.

Promoting diversity with orangeWIN – Network as a success factor

KUKA employees introduced a diversity initiative with orangeWIN (WIN standing for Women in Network). Targets and measures were developed under the patronage of Jurate Keblyte, CFO at KUKA Roboter GmbH, at a launch event during the period under review with more than 100 female KUKA employees, primarily from MINT professions, in order to enhance diversity within the Group and promote the advancement of women. In addition to creating innovative and creative impetus, the program is primarily about identifying and supporting female talents within the company. The first projects introduced by orangeWIN in 2016 are a social network for professional and private exchange, regular quarterly events with podium discussions, specialist lectures and guest speakers as well as a specially developed mentoring program which establishes both internal and external networks.

Strong employer brand

The large-scale employer branding campaign introduced in 2013 for different target groups is still being pursued in order to enhance the public perception of KUKA as an attractive employer. The appeal of the work environment at KUKA is reflected in external reviews. In the 2016 trendence Graduate Barometer, which is based on a survey conducted among pupils, students and young professionals about their preferred employer, KUKA was ranked 27th in the Engineering Edition and occupied 53rd place in the IT Edition. In the Universum study of the top employers for young professionals, KUKA rose to 25th place. The number of applications was at a very high level at a solid 15,000 in 2016 (compared to 2011 with just over 5,000). The career page was also completely revised in 2016 as part of the new KUKA website. KUKA received the silver seal in the best recruiters study in 2016 for excellent recruitment quality and occupied 4th place out of 35 examined companies in the mechanical and systems engineering industry ranking. In addition, KUKA continued to support the "Fair Company" initiative in the year under review, which promotes fair internships and real opportunities for university graduates. This means, for example, that KUKA primarily offers internships geared towards providing career orientation and does not propose internships as alternatives to graduates seeking permanent employment.

Employee share program

KUKA employees identify with the company's success and are interested in the employee share program. 218 employees participated in the program during the year under review. 22,991 shares were transferred to employees.

Forecast, opportunities and risk report

Opportunities and risk report

Basic principles

KUKA Group is a global enterprise with international operations. Any entrepreneurial activity provides new business opportunities, but also involves many risks, especially technical ones. The Executive Board of KUKA Aktiengesellschaft aims to systematically and sustainably improve the value of the company for all stakeholders and shareholders by seizing potential opportunities and minimizing said risks.

To achieve this objective, the Executive Board has implemented a comprehensive corporate risk management system to systematically and consistently identify, evaluate, manage, monitor and report the internal and external risks to which its divisions and subsidiaries are exposed.

Group management regularly assesses the likelihood that identified risks will occur and their potential impact on expected earnings (EBIT). Risks are categorized according to worst, medium and best case scenarios including the expected impact of the occurrence of an event. Accruals and write-downs associated with these risks are recognized in the annual financial statements in accordance with applicable accounting principles. The unsecured residual risks, i. e. risks according to risk mitigation measures (net assessment), are therefore depicted as risks.

The risk management system is subject to a monthly reporting process (risk inventory) which involves identifying new risks and carrying out a follow-up assessment of existing risks. The information that has been collected in this way is summarized in a risk report that is also prepared each month and addressed to the Executive Board of KUKA Group. This report contains a top 10 risk assessment and a risk exposure assessment (overall risk situation) for the divisions, KUKA Aktiengesellschaft as the holding company and KUKA Group. The top 10 risks are also a fixed part of internal monthly management reporting and are discussed at monthly results discussions between the Executive Board of KUKA Group and the management of the divisions. The identified risks are additionally presented and explained in more detail to the Executive Board each quarter by the Risk Management Committee. The committee also determines whether any measures already implemented to minimize risk are adequate or whether further steps need to be initiated. These plenums also assess the plausibility of the reported risks and determine how to avoid similar risks in future. The risk report is also reviewed during Executive and Supervisory Board meetings, especially by the Audit Committee.

The managers of the divisions and subsidiaries are directly responsible for the early identification, control and communication of risks. Risk managers in the central and decentralized business units ensure that the reporting process is uniform with clearly defined reporting channels and reporting thresholds that are in line with the size of the company. Internal ad hoc announcements are mandatory whenever risks exceed the Group's defined reporting thresholds. The standard risk management procedures applied throughout the Group are efficient and effective. The head of risk management coordinates the risk management system. He compiles the individual risks identified into the aforementioned top 10 risk overviews or risk exposure overviews and communicates and monitors them. This role is based within KUKA Aktiengesellschaft's Group controlling department, which reports directly to the CFO of KUKA Aktiengesellschaft. This ensures that risk management is an integral component of KUKA Group's overall planning, control and reporting process.

The Group's risk management system enables the Executive Board to identify material risks at an early stage, initiate appropriate steps to counter these risks and monitor implementation of the steps. The internal audit department regularly monitors compliance with the risk management guideline of KUKA Group and therefore whether existing procedures and tools are effective. It also audits those responsible for the risks if this is relevant. The internal audit department also regularly audits the risk management process to ensure efficiency and continuous improvement. Furthermore, external auditors check that the early risk identification system is suitable for early identification of risks that could threaten the existence of the company as a going concern.

In addition to the risk management system, KUKA Group has an internal control system (see management report, "Internal control and risk management system" section, page 65 et seq.) above and beyond the risk management system, which it uses to continuously monitor the appropriateness of the corporation's business and accounting processes and identify potential improvements.

Strategic risks and opportunities

KUKA's business divisions aim to be among the technology and market leaders in their target markets. The key to achieving this is to consistently enhance their core technologies on the basis of coordinated innovation programs. One important task is to identify opportunities and risks associated with technical innovations early and to evaluate the innovations' manufacturability. The company mitigates the impact of faulty market assessments by conducting regular market and competitor analyses, some of which are decentralized. The risk of developing non-marketable products and systems is reduced through application-oriented development, partnerships with system integrators and alliances and cooperative research projects with, for example, the German Aerospace Center (DLR) in Wessling near Munich, the RWTH technical college in Aachen and several institutes of the Fraunhofer Society. Strategic risks and opportunities are not quantified.

Operational risks and opportunities – KUKA Group

KUKA Group’s opportunities and risk-related controlling process ensures that the company’s managers take both opportunities and risks into consideration. The Group’s risk exposure, based upon evaluating operating risks according to the procedure outlined in the “Basic principles” section, is described below. The report includes the total aggregated maximum risk (worst case) and expected risk value, which are calculated on the basis of the various weighted scenarios and their respective likelihood of occurrence.

Opportunities are evaluated by the individual divisions and are not further aggregated. For this reason, the opportunities are dealt with in greater detail in the following sections on the divisions (Robotics, Systems, Swisslog).

Group risk exposure

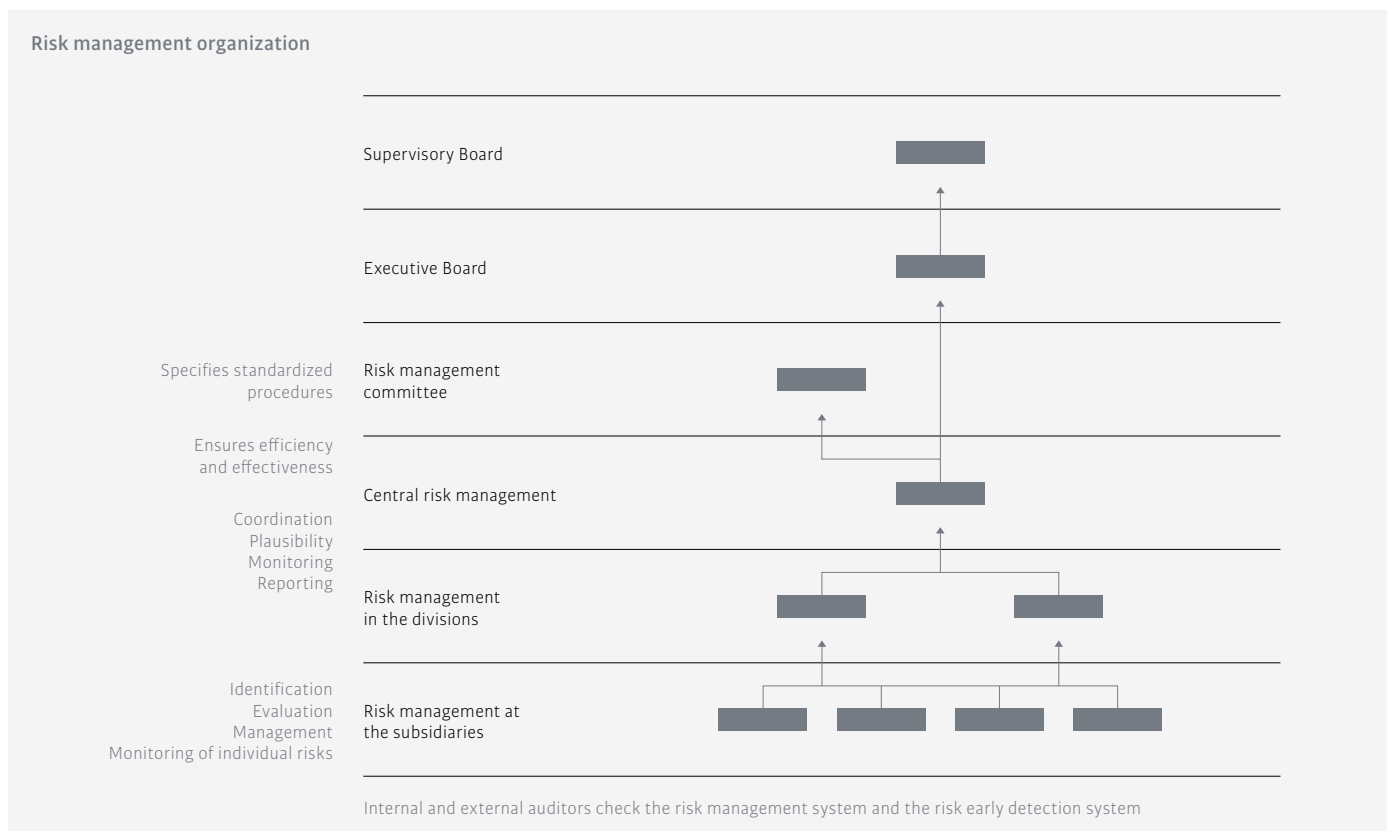
in € millions	Worst case		Expected risk value	
	2015	2016	2015	2016
Legal risks	6.5	6.1	0.4	-0.5
Economic risks	51.2	26.4	2.8	-3.8
Total for the Group	57.7	32.5	3.2	-4.3

Legal and economic risks occur primarily as a result of the activities of the Robotics, Systems and Swisslog divisions. The changes on the previous year can be explained in part by the positive development of business and also by intensified risk mitigation measures, which in some cases result in a theoretically negative expected risk value.

More detailed explanations of legal and economic risks can be found in this section with regard to cross-division risks that are managed at Group level or in the following sections with regard to the individual divisions (Robotics, Systems, Swisslog). We also evaluate the potential worst-case damage that could be caused by the individual risks and the likelihood that they will occur, categorized as follows:

	Maximum loss	Likelihood of occurrence
Low	to €5 million	to 10%
Medium	€5 to 10 million	10 to 25%
High	€10 to 20 million	25 to 40%
Very high	over €20 million	over 40%

Please refer to the notes, starting on page 78, for details regarding the precautionary balance sheet measures for the identified risks.



Cross-division opportunities and risks such as financing, personnel and IT are analyzed and managed at Group level, not by the individual divisions, which is why said risks are only addressed from the Group perspective in the opportunity and risk report.

Since KUKA conducts business around the world, it is obliged to comply with many international and country-specific laws and regulations issued by, for example, tax authorities. The company employs specialists familiar with the respective countries' laws on a case-by-case basis. Opportunities and risks arise as a result of changes to legal frameworks. For example, tax audits discovering non-compliance issues could negatively impact the Group in the form of payment of interest charges, penalties and back taxes. At the present time, there are no foreseeable tax or legal issues that could have a significant negative impact on KUKA Group. Appropriate provisions have been recognized for tax risks based on experience.

Standard general contracts are used whenever possible to cap legal risks. The Group's legal department supports the operating companies to help limit risks associated with in-house contracts, warranty obligations and guarantees as well as country-specific risks such as the lack of patent and brand protection in Asia. KUKA has developed an independent strategy to safeguard its intellectual property, which is primarily secured by patents and trademark rights.

In addition, Group-wide Directors' and Officers' (D & O) liability insurance policies are in place that cover the managing bodies (Executive Board and managing directors) and supervisory bodies (Supervisory Board, administrative and advisory boards) of the German and foreign subsidiaries. Existing insurance policies are reviewed annually in order to weigh the relationship between the insurance protection and deductible amount versus the risk premium.

There are no operating risks in existence for KUKA AG or other companies.

Operational risks and opportunities in the divisions

KUKA is exposed to the cyclical investment behavior of its customers in the various market subsectors. A major portion of the Systems, Robotics and Swisslog divisions' business volume is in the automotive sector where oligopolistic structures and constant price pressure are ongoing concerns. Fluctuations in the industry's capital spending plans are also considered in the respective strategic and operative plans by analyzing public announcements and disclosures. The company continuously strives to be as flexible as possible with its own capacities and cost structure to address the cyclic nature of the business.

KUKA benefited from significant investment activities in both the automotive industry and the aircraft industry and general machinery and systems engineering sector throughout 2016. Additional opportunities arose because KUKA Group's key automotive customers enjoy an

excellent competitive position in their markets. In comparison to its own competitors, KUKA Group sees business growth opportunities due to its customer portfolio, particularly with respect to the growth of its customers' market shares. Further opportunities arise due to the general trend toward greater automation in non-industrial sectors, such as the long-term prospects associated with assisting an aging society. The acquisition of Swisslog Group in December 2014 reduced dependency on the cyclical automotive industry, as Swisslog implements automation solutions for hospitals, warehouses and distribution centers.

KUKA works with suppliers that focus on quality, innovative strength, continuous improvement and reliability so that it can supply its own customers with products of the highest possible quality. Generally, KUKA sources product components from several suppliers in order to minimize the risk of sharp price rises for key raw materials, but in a few cases, due to a lack of alternative sources, is dependent on single suppliers that dominate their markets.

KUKA Robotics

Demands for continuous product innovation from international customers and unrelenting cost awareness are the key challenges for this division's product portfolio; especially when it comes to the automotive industry and its subsuppliers. The result is permanent price pressure and potentially longer life cycles for the robotic applications combined with demands for ever-improving quality and longer warranties.

KUKA Robotics responds to such trends by continually developing new products and applications that offer customers in existing markets quantifiable financial benefits driven by quick paybacks. Launching new products goes hand in hand with product performance risks and quality guarantees, which could generate additional costs if rework is required. KUKA employs a comprehensive quality management system that includes extensive validation and test processes to manage such risks or avoid them altogether.

KUKA sees an opportunity to continuously expand its customer base in general industry. One of the corporation's key strategic thrusts is to penetrate new, non-automotive markets. The aim is to penetrate the healthcare sector and other consumer-related markets in which human-machine collaboration will in future be essential. Systems used for human-machine collaboration can operate without protective barriers or similar safety measures. One of the division's sections, Advanced Robotics, focuses on developing and implementing the technology for such innovative products and applications. The company's profitability will become less and less dependent on exchange-rate fluctuations as it increasingly spreads its value added across different local currencies.

Robotics risk exposure

	Worst case	Expected risk value
Legal risks	0.0	0.0
Economic risks	12.1	0.0
Total for Robotics	12.1	0.0

The assessed potential damage associated with all individual risks is low (to €5.0 million) and the likelihood of occurrence is low to high (to 40.0%).

KUKA Systems

This division's sales and profits are subject to general business risks due to the length in time it takes to process project orders, the revisions to the specifications that are often necessary while already processing the orders, the infrequency of the orders received and the price and competitive pressures. Other risks associated with these projects include inaccurate prediction of the actual costs as well as penalties for late deliveries. The division therefore uses appropriate risk checklists for individual orders in order to assess the associated legal, economic and technological risks prior to preparing a quotation or accepting a contract. One of the components of project execution is to monitor and track solvency risks and mitigate them using a strict project and receivables management process. Other risks are continuously monitored and if necessary accounted for by way of accruals or write-downs. Opportunities associated with the project business arise mainly when parts can be purchased at a lower cost than originally estimated and by invoicing the customer for any change orders received over the course of the project.

Major automakers throughout the world are currently feverishly expanding their global manufacturing capacities. KUKA increasingly works together with internal partners, whereby several of the division's regional subsidiaries collaborate on a project, especially in South America and Asia. In these situations, risks involve information exchange, the value-added process and the IT-based master project management system. There are also organizational risks associated with extraordinarily rapid and strong growth in business volume, particularly in emerging markets. KUKA mitigates these risks by harmonizing its global IT systems and deploying experienced internal and contract employees when establishing and expanding the local organizations.

The increasing variety of models offered by the automotive industry has a positive impact on the potential market volume, since this generates increasing demand for flexible manufacturing systems, which in turn spurs demand for new or revamped assembly lines. This creates new business opportunities for system providers and subsuppliers. Scarce resources are driving demand for smaller and more fuel-efficient vehicles that will use alternative energy sources. This means automakers, especially American manufacturers, will have to invest in new production lines or upgrade their existing assembly lines in the future.

Pay-on-production contracts such as KTPO's (KUKA Toledo Production Operations) offer additional opportunities, but also risks. The Jeep Wrangler brand continues to promise above-average growth prospects compared to other American car models. KUKA again participated in this growth during 2016. Here risks involve greater dependence on the volumes produced for the American car market.

Thorough market analyses have shown that KUKA Systems also has long-term business opportunities outside the automotive industry; namely, in general industry. The main risks here when tapping into new market potential relate to technical requirements, since customers in these sectors often have no experience with automated systems. The aforementioned checklists to review the technical risks associated with applying new automation techniques are therefore an especially important tool for mitigating risks.

Systems risk exposure

	Worst case	Expected risk value
Legal risks	4.6	0.0
Economic risks	13.3	-4.3
Total for Systems	17.9	-4.3

The assessed potential damage associated with all individual risks is low to high (to €20.0 million) and the likelihood of occurrence is low to medium (to 25%). Intensified risk mitigation measures result in a theoretically negative expected risk value in individual cases.

Swisslog

The division is subject to long-term investment cycles spread over various industries, such as hospitals, pharmaceuticals, food and e-commerce. The competition and the associated pressure on prices vary from one region to another. High investments in its own products to expand its range of solutions serve to strengthen the company's competitive position considerably. In addition to synergy effects, integration into KUKA enables expansion of the range of solutions by making it possible to offer customers integrated automation and robotics solutions.

In some cases, projects for the automation of warehouse and distribution centers are subject to long lead times which can give rise to financial risks resulting from miscalculations, failure to meet acceptance specifications or late deliveries. To counter this, regular project risk assessments are carried out at different stages of the projects by those responsible for project implementation in the relevant countries. Potential risks are regularly checked, new ones are added or existing ones eliminated, and measures for risk reduction are introduced and their progress documented. Projects requiring particular management attention are classified as "top attention projects" and their status is communicated monthly to the higher management levels.

Market data indicate that the increasing pressure on costs and the strict safety requirements for hospital logistics offer high growth potential for automation. Furthermore, consolidated service centers, in which hospitals standardize their logistics processes and achieve cost advantages, generate greater demand for automation solutions.

Swisslog risk exposure

	Worst case	Expected risk value
Legal risks	1.5	-0.5
Economic risks	1.0	0.5
Total for Swisslog	2.5	0.0

The assessed potential damage associated with all individual risks is low (to €5.0 million) and the likelihood of occurrence is low to high (to 40.0%). Intensified risk mitigation measures result in a theoretically negative expected risk value in individual cases.

Financial risks

KUKA Group is under the financial control of KUKA AG. The primary objectives of financial management are to secure the liquidity and creditworthiness of the Group, thus ensuring financial independence. Effective management of foreign exchange, interest rate and default risk also serves to reduce earnings volatility.

KUKA AG identifies, coordinates and manages the financial requirements of the Group companies and optimizes the financing of the Group. For this it employs a Group-wide standard treasury management and reporting system. KUKA AG normally procures finance centrally and distributes the funds among the Group companies. In addition, liquidity risk is reduced for KUKA Group by closely monitoring the Group's companies and their management of payment flows.

The significant improvement in the company's credit rating during recent years is a reflection of the positive development of KUKA Group and guarantees access to a broad investor base as a source of finance. Standard & Poor's awards KUKA Group a rating of BB+ along with a positive outlook. Early in 2017, Moody's even raised the KUKA Group rating to investment grade and now rates KUKA as Baa3 with a stable outlook.

KUKA pursues a conservative debt policy with a balanced funding portfolio. This is based on promissory note loans issued in 2015 with maturity dates up to 2022, an ABS program and a syndicated loan significantly extended and adapted in 2016 with a term until 2022. The usual financial covenants were agreed for the syndicated loan. KUKA monitors adherence to these covenants on a monthly basis; the covenants were complied with throughout fiscal 2016. As of December 31, 2016, all the covenants were well within the contractually defined limits. Please refer to the notes to the annual financial statements, "Financial liabilities/Financing", page 108, for comprehensive details of the syndicated loan and the extent to which the agreed credit lines have been utilized.

KUKA hedges the risks from operations and financial transactions with financial derivatives. As a matter of principle, no hedging transactions are entered into without an underlying basic transaction. Whenever possible, KUKA AG is the central hedging partner of the Group companies, and it in turn hedges the Group's risks by concluding appropriate hedging transactions with banks. Internal guidelines govern the use of derivatives, which are subject to continuous internal risk monitoring. For a more precise description of our risk management objectives and the methods employed please refer to the notes on financial risk management and financial derivatives, starting on page 111.

Currency translation risks, i.e. measurement risks associated with balance sheet and income statement items in foreign currencies, are not hedged, but are continuously monitored. The risk associated with the volatility of leading currencies and the resulting economic exchange risk (competitive risk) is mitigated by having production facilities in several countries (natural hedging).

Personnel risks and opportunities

The success of KUKA Group, a high-tech enterprise, depends to a great degree on having qualified technical and management staff. Personnel risks arise mainly from employee turnover in key positions within the Group. Improvements in both business and economic prospects enable the company to strengthen the loyalty of its core personnel, train new, highly skilled employees and entice new recruits to join the Group. This applies to the traditional markets in Europe and the United States, but especially to recruiting employees in growth markets, where the need for skilled employees is growing steadily. Last but not least, in-house continuing education programs such as those offered by KUKA Academy or employee suggestion programs generate opportunities resulting from the improved motivation and qualification of the workforce.

IT risks and opportunities

IT risks have risen over the past number of years, not least because of the importance of IT to business processes. These risks relate to both the frequency of viruses or hacking and the damage they could potentially cause. The existing IT security and business continuity management systems as well as guidelines and organizational structures are regularly optimized and reviewed in an effort to predict and minimize possible IT-related risks such as failure of computer centers or other IT systems. One way this is addressed is by continuously upgrading hardware and software. Furthermore, KUKA has launched several transformation projects which are currently running with the objective of harmonizing processes and the supporting IT application system architecture throughout the Group. This will generate long-term cost reduction potential and lead to continuous quality improvements. By systematically monitoring the processes concerned, the company reduces the risks associated with an increasing number of external threats as well as dependence on the ever-expanding digitization of business processes.

Compliance risks

Compliance violations may lead to fines, sanctions, judicial orders regarding future conduct, forfeiture of profits, exclusion from certain transactions, loss of trade licenses or other restrictions. Furthermore, involvement in potential corruption proceedings could harm the overall reputation of KUKA Group and could have a negative impact on efforts to compete for business in both the public and private sectors. Such proceedings could also have a negative impact on the relationship KUKA Group has with business partners upon which it depends as well as its ability to find new business partners. They could furthermore negatively impact the company's ability to pursue strategic projects and transactions of potential importance for the business, such as joint ventures or other forms of cooperation. Ongoing or future proceedings could lead to the suspension of some existing contracts, and third parties, including competitors, could initiate legal proceedings against KUKA Group for substantial sums of money.

KUKA therefore rolled out a Corporate Compliance Program in early 2008 to make such risks transparent and controllable. The Compliance Committee established through this program meets at regular intervals and ad hoc and reports to KUKA Aktiengesellschaft's CEO, who in turn reports directly to the Supervisory Board's Audit Committee. The CEO is ultimately responsible for the Corporate Compliance Program, which is regularly updated and subject to strict internal controls. Moreover, mandatory training is organized for employees on compliance issues at regular intervals (most recently, the new Corporate Compliance e-learning program introduced in 2016). No substantial risks were identified in 2016 due to the active countermeasures taken to mitigate risk at an early stage and to eliminate risk sources, e. g. by realigning business processes.

Other risks

KUKA Group continuously monitors other risks and mitigates these to the greatest extent possible. There is no evidence of environmental risks from operational activities, since the company does not use hazardous materials. The Group makes use of buildings and properties for its business operations, some of which it owns. As a result, the company is exposed to risks associated with any residual pollution, soil contamination or other damaging substances that may be discovered on its properties. There is currently no evidence of any situations that would have a negative impact on the measurement of balance sheet items. However, it cannot be ruled out that any such situations, which could, for example, require costly clean-up operations to be undertaken, will occur in the future. Please refer to page 70 for information about material agreements subject to conditions related to a change of control.

Summary

Overall, KUKA Group's named risks relate to the business performance of the divisions and financial risks associated with currency exchange rate fluctuations and corporate financing. The Executive Board is not aware of any individual or aggregated risks that could threaten the company's existence. Strategically and financially, the company is positioned to be able to take advantage of business opportunities.

Forecast

General economic environment

Development of the global economy is generally positive with the growth trend continuing. According to the International Monetary Fund (IMF) the global economy grew 3.1% in the past year. Compared with growth in 2015 this represents a stable trend (2015: 3.1%).

The IMF expects the global economy to expand again more rapidly in 2017 and has forecast economic growth of 3.4%. This increase is likely to be driven by the higher growth in some major industrialized countries and specifically by economies which underwent a sharp decline during 2016.

According to the IMF, the overall economy in Europe is set to continue growing, although the rate of growth is expected to decrease slightly. Following a plus of 1.7% in 2016, growth of 1.6% is expected for 2017. Behind this development are deflationary general conditions and uncertainties in advance of elections in various member states. Moreover, the coming departure of the United Kingdom from the European Union makes economic planning difficult and thus hinders investment. The IMF is predicting the trend in Germany, the most important single market for KUKA, to be similar to that in the rest of Europe. Following an increase of 1.7% in 2016, growth of 1.5% is expected in 2017.

For the USA, the IMF has slightly raised its growth forecasts for 2016. According to the experts, the new US Government's announcements concerning lower corporate taxes and investment in the infrastructure should be a boost for the US economy. In actual figures, the IMF is anticipating 2.3% growth during 2017. The North American market is the second largest sales market worldwide for KUKA Group.

Among the larger economic markets, the IMF still regards China as likely to be one of the largest motors for growth of the global economy during 2017. However, in comparison to the year before, the pace of growth is anticipated to diminish further. The reasons lie in lower investment and the transition from an export-driven economy to demand supported to a greater extent by the internal market. The IMF forecasts growth of 6.5% for China in 2017 (2016: 6.7%). China was KUKA's third largest single market worldwide in 2016.

IMF expectations for the most significant global markets from KUKA's viewpoint:

Economic growth

in %	2016	2017	2018
Germany	1.7	1.5	1.5
Eurozone	1.7	1.6	1.6
USA	1.6	2.3	2.5
China	6.7	6.5	6.0
Developing/emerging countries	4.1	4.5	4.8
World	3.1	3.4	3.6

Source: IMF, January 2017

Global drivers of growth in robot-based automation

The growth prospects for automation and robotics remain high. In its most recent study, the International Federation of Robotics (IFR) anticipates corresponding expansion of the global robot market and greater investment in the automation of production systems. Efficiency increases, improved product quality, higher unit quantities, greater product diversity and flexibility in particular are decisive factors for manufacturing companies continuing to raise the level of automation.

Growth opportunities for KUKA

1) China and other emerging economies

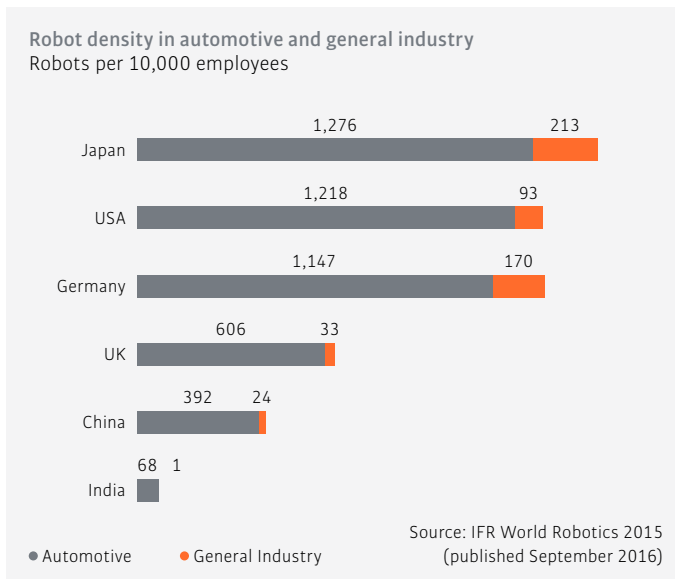
Robot density, and thus the degree of automation, is much higher in industrial countries than in the developing and emerging economies. In other words, the growth potential of robot-based automation on these markets is much higher than in the industrialized countries. The growth potentials in the emerging markets affect the automotive sector as well as the various segments of general industry. The international automotive industry is investing predominantly in these countries in order to profit from lower wage costs, but also in order to be able to react flexibly to local customer requirements. Robot-based automation is an important element in this context. For decades it has been the standard for some production stages – body-in-white manufacture, for example. Local car manufacturers in the emerging markets are also investing in automation in order to match up to the rising quality requirements and to enable them to export more of their vehicles in the medium-term future.

At the same time, wages and salaries are sometimes rising by 10% or more each year in the emerging economies, and this generally poses great challenges to companies that manufacture locally. Automation solutions can assist in cushioning against this rise in costs. The growth of automation in general industry is exposed to the same factors as the automotive industry: increased cost pressure at the same time as rising product quality requirements. In recent years the Chinese robot market grew disproportionately and is now the world's largest sales market. According to the latest study by the IFR, the number of robots sold per year has risen by more than the factor 10, from just under 8,000 (2008) to approximately 90,000 in 2016. The robots installed in China are made almost exclusively by international manufacturers. However, according to the IFR, Chinese robot suppliers have become increasingly important and are set to increase their market share further in the coming years. The new market players are also supported by government programs.

KUKA sees the Chinese robot and automation market as a core element of its future growth strategy and is therefore expanding its market presence in China. At the end of 2013, a robot assembly plant was opened in the Greater Shanghai area, with production there now already meeting a large proportion of local demand. This plant is to increase its capacity in 2017. In addition, KUKA Group's workforce in China rose from 1,101 employees (December 31, 2015) to 1,289 (December 31, 2016). This has afforded KUKA greater local presence, increasing its proximity to the customer and allowing it to act with greater flexibility. The customers profit from much shorter delivery times and faster response times. Through Midea's support, KUKA expects to gain an even greater market presence in China over the coming years with positive stimuli for the Group's growth.

2) General industry

Compared with the automotive industry, the robot density (number of robots per 10,000 employees) in general industry is still relatively low (see graphic on page 63). On average, the automotive industry's robot density is roughly eight times that found in general industry. Above all, it is high cost pressure, rapidly changing markets and customers' requirements as well as growing demands for quality which necessitate production that is flexible and efficient for companies to remain competitive. This is why the sales potential of the automation sector is very high. For the electronics (computers, communications and consumer goods), logistics/e-commerce, metal, machine tool and food industries in particular KUKA is expecting a significant increase in investment in automation solutions and robots in the coming years. KUKA is following a strategy of expanding its market shares in general industry overall and pushing expansion specifically in the sectors referred to above.



3) Automotive

The international automotive industry has a decisive impact on robot sales development, as it accounts for around 35 to 40% of the industrial robots sold annually. In the mature manufacturing regions such as Europe, the United States and Japan, growth potential is driven mainly by the need to modernize or upgrade existing production systems. Increasingly, however, production operations and processing stages are changing where at present there are relatively low numbers of robots being employed. Car manufacturing and sales volumes will continue to rise worldwide. According to estimates released in October 2016 by PWC/Autofacts, the annual number of cars manufactured will rise from some 88.2 million vehicles in 2015 to 107.3 million vehicles in 2020. KUKA is not directly dependent on the number of vehicles built, yet the range of models of the manufacturers is increasing with car sales. The manufacturers must therefore invest in new production systems and in making existing facilities more flexible in order to allow this growth to be generated in the most efficient way possible. KUKA is therefore expecting, as predicted by the IFR, that the investments of the car makers in automation will rise further, but accompanied by lower growth rates than in general industry. In addition to the continuing increase in model diversity, the drivers of this trend are the decrease in product life cycles of existing vehicle types and an increase in model platforms without the risk of forfeiting efficiency. Moreover, local car manufacturers from emerging and developing economies are increasingly investing in automation in order to raise the quality of their vehicles and so further their exports to the industrialized nations.

4) Digitization and Industrie 4.0

Industrie 4.0 is the next stage of industrialization, in which automated production technologies, mechanical engineering and intelligent IT systems are networked. This networking will lead to smart factories, characterized by versatility, resource efficiency, ergonomic design of workplaces and the integration of customers and business partners in business and value creation processes. As an automation company, KUKA is playing a central role in the practical implementation of Industrie 4.0. Industrie 4.0 is creating the basis for manufacturing high-quality one-off products with the advantages of series production. Traditional manufacturing is being superseded by the flexibility of new technologies. It is all about the interoperability of systems, one of KUKA's strengths: hardware and software all from one source. This is an important competitive advantage for our customers since production sequences can be better coordinated by networking. The robot is to serve as the link between IT and production and between humans and technology. The robot will assist them and take over the monotonous or physically demanding work, while the humans will perform challenging and creative tasks. In Austin, Texas, KUKA has set up a new IT site which connects robots and logistics solutions to the cloud, the web, mobile platforms and other IT technologies. This site is also concentrating on developing our software applications further and pushing ahead with the development of our skills in the area of data analytics. To further enhance KUKA's power of innovation, we have invested in start-ups such as Nebbiolo in Silicon Valley and Roboception in Munich, as well as setting up the software platform conyun. We have also entered into strategic partnerships, for example with Salesforce (digitization of the value chain and improvement of all points of contact between companies and their customers).

Company-specific factors

Summary

Given the current economic forecasts and general conditions, KUKA anticipates high demand in fiscal 2017, particularly from China and North America. A slight increase in demand is expected in Europe as a whole. From a sector perspective, a positive development is predicted for the general industry market. Demand in the automotive industry is expected to remain stable, now that customer investments have already risen considerably in recent years, with positive stimulus in the USA and China.

There is a detailed report on the currency influences in the notes, starting on page 78. In the case of Systems, a higher US dollar/euro exchange rate has a positive impact on the key financial indicators because the North American sales market is very important for this business division. For Robotics, the development of the yen/euro exchange rate is particularly important. A weaker yen/euro exchange rate has a negative effect on Robotics because the main competitors predominantly manufacture in Japan. For Swisslog, the appreciation of the Swiss franc will have a slightly adverse effect on operations, because the cost share of this division in Switzerland is slightly higher than the revenue share.

Anticipated business development at KUKA

Summary	2016 result	2017 outlook
Sales revenues	€2,948.9 million ¹	~€3.1 billion
EBITDA margin	7.0%	virtually stable
EBIT margin	5.6% ²	> 5.5% ³
Net income for the year	€86.2 million	virtually stable
Investments ⁴	€99.6 million	rising
Free cash flow	€-106.8 million	rising
Dividend per share	0.50 €	constant to rising

¹ Including the divested Systems aerospace business segment in the USA (~€100 million)

² Before purchase price allocation for Swisslog (€10.8 million) and before extraordinary expenses relating to the takeover by Midea (€28.0 million)

³ Before purchase price allocation for Swisslog and growth investments (e.g. Industrie 4.0)

⁴ Before financial investments

Definitions:

virtually stable: absolute change compared to prior year 0 – 5% or 50 basis points

declining/rising: absolute change compared to prior year >10%

Sales and EBIT margin

On the basis of the current general conditions and exchange rates, KUKA is expecting sales revenues of around €3.1 billion in fiscal 2017. Based on the current economic environment and the anticipated development of sales, KUKA Group expects to achieve an EBIT margin of more than 5.5% before purchase price allocation for Swisslog and also before growth investments amounting to about €45 million. Investment relates, for example, to Group-wide issues such as digitization, Industrie 4.0, general industry and China. KUKA is expecting these investments to open up additional areas of growth for the Group in the coming years, which should be reflected in higher sales revenues. The expenditure for purchase price allocation at Swisslog should amount to about €10 million in 2017 and thus remain at the level of the previous year.

Net income

In the 2016 fiscal year, KUKA Group generated net income for the year of €86.2 million. In 2017, the envisaged rise in revenues should have a positive effect on net income, but the planned increase in growth investment should have a negative effect. KUKA is therefore expecting a relatively stable development of net income at Group level in 2017, as well as at AG level before growth investment.

KUKA Aktiengesellschaft's result in the separate financial statements depends primarily on the profit transfers of the German subsidiaries and on dividends from subsidiaries.

Research and development/investments

The total expense of research and development (R & D) can chiefly be attributed to the Robotics division and, to an increasing extent, to topics concerning the whole Group. At Systems in particular, research and development activities are mainly conducted as part of customer projects. The high demand for our robots and solutions is based predominantly on their competitive advantages in terms of innovation, quality and benefit to customers. The spending on R & D is to rise in 2017 in order to safeguard and expand these competitive advantages in a sustainable way. Overall, KUKA plans to strengthen the R & D segment regionally. Correspondingly, new sites are being opened and existing sites expanded. Spending by the Robotics division will mainly focus on extending the product portfolio, developing applications, new software solutions and measures to boost the efficiency of existing products. We are planning to extend and broaden our product portfolio throughout the Group in the areas of digitization/Industrie 4.0 and mobility so as to remain a leading innovator in automation and be capable of serving the rising customer demand for such products. KUKA is budgeting for around 5% to be spent on research and development in 2017 (2016: €126.6 million).

Free cash flow

KUKA Group's free cash flow is primarily generated from operating profits and the development of working capital in the Robotics, Systems and Swisslog divisions. Based on the current general conditions and the budgeted sales growth, KUKA Group expects a significant improvement in free cash flow before financial investments in 2017.

Dividend

The Executive and Supervisory Boards will recommend to shareholders at the Annual General Meeting on May 31, 2017 that a dividend of €0.50 per share should be paid for 2016.

For fiscal 2017, KUKA plans to maintain its dividend and possibly increase it slightly, allowing for the general conditions at the time.

Internal control and risk management system

Basic principles

Pursuant to section 289 para. 5 and section 315 para. 2 no. 5 of the German Commercial Code (HGB), KUKA Aktiengesellschaft as a publicly traded parent company must describe within the management report the key characteristics of its internal control and risk management system with regard to the accounting process. The description must include the accounting processes of the companies included in the consolidated financial statements.

The risk management system comprises all organizational rules and measures related to identifying risk and dealing with entrepreneurial risk (see “Opportunities and risk report” on page 56 et seq.). The internal control system is an integral part of the risk management system.

The internal control system (ICS) comprises all principles, processes and measures introduced to the company by management that result in systematic and transparent risk management. The internal control system focuses on organizational implementation of management decisions made to ensure the effectiveness and efficiency of business operations (including the preservation of assets, which includes preventing and exposing asset misappropriation), adherence to generally accepted accounting principles and the reliability of internal and external accounting and compliance with the legal provisions relevant to the company.

The objective of the ICS is to obtain sufficient certainty using the implemented controls and to be able to monitor and manage risks to ensure that the company’s goals can be achieved. Various monitoring measures – both integrated into and independent of the processes – contribute to the preparation of annual and consolidated financial statements that are in conformity with the legal provisions.

Regardless of its specific form, an ICS is unable to provide absolute certainty as to whether it will achieve its objectives. Taking this into account, the accounting-related ICS can only provide relative certainty rather than absolute certainty that material misstatements in accounting will be avoided or detected.

Structures and processes

With regard to the accounting process, the structures and processes described below have been implemented in KUKA Group. The Executive Board of KUKA Aktiengesellschaft bears full responsibility for the scope and design of the ICS.

The system extends via clearly defined management and reporting structures to all subsidiaries that are included in the consolidated financial statements.

For the Group’s German companies, the Shared Service Center of KUKA Aktiengesellschaft is responsible at a central level for accounting and human resource operations.

Intra-group tasks such as treasury, legal services and taxes are also largely performed centrally by KUKA Aktiengesellschaft on the basis of uniform Group processes.

The principles, organizational structures and processes of the (Group) accounting-related internal control and risk management system are defined in guidelines and organizational procedures. Adjustments based on external and internal developments are integrated on a continuous basis and made available to all employees concerned.

Characteristics of the internal control and risk management system

With respect to the accounting process, we regard those characteristics of the internal control and risk management system as material that can significantly impact the accounting and the overall presentation of the consolidated and annual financial statements, including the combined management report. At KUKA Group, these include, in particular:

- › Identifying the main areas of risk (see “Opportunities and risk report” on page 56 et seq.) and control that affect the (Group) accounting process;
- › Quality controls to monitor the (Group) accounting process and the accounting results at the level of the Group Executive Board, the management companies and individual reporting entities included in the consolidated financial statements;
- › Preventive control measures in the finance and accounting systems of the Group and the companies included in the consolidated financial statements as well as in operating business performance processes that generate key information for the preparation of the consolidated and annual financial statements and the combined management report, including a separation of functions of predefined approval processes in relevant areas;
- › Process-integrated monitoring measures such as the principle of dual control for which each material business transaction must be signed or otherwise authorized by at least two authorized persons;
- › Measures to ensure proper, IT-supported processing of (Group) accounting-related facts and data. These include, for example, central management of access rights to the bookkeeping systems and automated plausibility checks when data are recorded in the reporting and consolidation system;

- › Implementation of the control requirements to be met by the accounting-related ICS is defined and monitored by the central Group ICS department, which remains independent of the processes. By means of a defined procedure, the internal controls are documented by the responsible departments and then examined by independent parties – normally the Group ICS department – for functional capability and effectiveness. Any weak points in the control system are targeted through action plans, whose implementation is monitored. Significant control weaknesses and the implementation of action plans are reported to the Executive and Supervisory Boards.

Internal Audit constitutes an additional control entity that is independent of processes and regularly reviews the organizational structures, processes and orderliness in addition to the defined ICS requirements, thus contributing to compliance with the ICS and risk management system.

In addition, the CFOs of all subsidiaries must provide an internal responsibility statement in the context of external reporting every quarter, confirming that the data reported are correct. Only then do the members of the Executive Board of KUKA Aktiengesellschaft issue and sign a responsibility statement at mid-year and year-end (see page 128), by which they confirm that they have adhered to the prescribed accounting standards of KUKA Group and that their figures give a true and fair view of the net assets, financial position and results of operations of the Group.

The elements of the ICS relevant for financial reporting are evaluated by an auditor to determine their effectiveness as part of a risk-oriented audit approach.

In its meetings, the Audit Committee of the Supervisory Board regularly reviews the effectiveness of the accounting-related internal control system. The Supervisory Board therefore continuously obtains an appropriate view of the Group's risk situation and monitors ICS effectiveness. In so doing, the Executive Board of KUKA Aktiengesellschaft presents the risks associated with financial reporting at least once per year, outlines the control measures implemented, and monitors their correct execution.

Summary

The structures, processes and characteristics of the internal control and risk management system that have been depicted ensure that the accounting processes of KUKA Aktiengesellschaft and KUKA Group are uniform and are implemented in accordance with the legal requirements, generally accepted accounting principles, international accounting standards and internal Group guidelines.

They also ensure that transactions are recognized and measured uniformly and accurately throughout the Group and that accurate and reliable information is therefore provided to the internal and external recipients of the information reported.

Disclosures in accordance with section 289 para. 4 and section 315 para. 4 of the German Commercial Code (HGB) including accompanying explanations

The disclosures in accordance with takeover law required by sections 289 para. 4 and 315 para. 4 of the German Commercial Code (HGB) are presented as of December 31, 2016 and explained in the following.

Composition of subscribed capital

As of December 31, 2016, the total share capital of KUKA Aktiengesellschaft amounted to €103,416,222.00 and consisted of 39,775,470 no-par-value bearer shares with pro rata share capital of €2.60 per share. The share capital is fully paid up. All shares have equal rights and each share guarantees its holder one vote at the Annual General Meeting. Shareholders are not entitled to have share certificates issued for their shares (section 4 para. 1 of the Articles of Association). When new shares are issued, the start of profit sharing may be established at variance with section 60 para. 2 of the German Stock Corporation Act (AktG) (section 4 para. 3 of the Articles of Association).

Restrictions affecting voting rights or transfer of shares

KUKA Aktiengesellschaft has granted the company's Executive Board members and other selected executives from Group companies the right to participate in so-called "phantom share programs", i.e. virtual share programs, as per the terms of their individual contracts for the period up to and including 2016. The phantom share programs are part of the performance-based compensation system for executives and have been aimed at sustainably increasing the enterprise value. Each of the programs has a term of three years. The payout at the end of the term depends on the development of the share price and on the change in enterprise value during the term of the program. The phantom share programs stipulate that at the end of the term of the respective program, Executive Board members must apply 25% of the gross sum paid out toward the purchase of KUKA shares until a predetermined holding volume is reached. For the programs established to date, the holding volume amounts to 50% of the fixed annual remuneration of the executive in question. Shares acquired outside the phantom share program also count towards the holding target. The holding obligation of the Executive Board does not end until the participant leaves KUKA Group. In the context of the Midea takeover bid, the Executive Board was relieved of its holding obligation by the Supervisory Board on June 25, 2016 in relation to the shares currently held.

The Executive Board is not aware of any other restrictions that would affect voting rights or the transfer of shares.

Shareholdings that exceed 10% of the voting rights

According to the German Securities Trading Act (WpHG), any investor who reaches, exceeds or falls below the voting rights threshold pursuant to section 21 of the WpHG through purchase, sale or by other means is obliged to report this to the company and the German Federal Financial Supervisory Authority (BaFin).

KUKA Aktiengesellschaft was informed of the following shareholdings of more than 10% of the voting rights by the following persons and companies until December 31, 2016 as follows:

a) Swoctem GmbH – Notifications dated August 5, 2014

1.	Swoctem GmbH, Haiger/Germany	10.018%	held directly
2.	Dr. Friedhelm Loh/Germany	10.018%	allocated pursuant to section 22 para. 1 sentence 1 no. 1 of the WpHG

b) J.M. Voith GmbH & Co. Beteiligungen KG – Notifications dated March 31, 2015 and April 1, 2015¹

1.	J.M. Voith GmbH & Co. Beteiligungen KG, Heidenheim an der Brenz/Germany	25.10%	held directly
2.	J.M. Voith Verwaltungs GmbH, Heidenheim an der Brenz/Germany	25.10%	allocated pursuant to section 22 para. 1 sentence 1 no. 1 of the WpHG
3.	Voith GmbH, Heidenheim an der Brenz/Germany	25.10%	allocated pursuant to section 22 para. 1 sentence 1 no. 1 of the WpHG
4.	JMV GmbH & Co. KG Heidenheim an der Brenz/Germany	25.10%	allocated pursuant to section 22 para. 1 sentence 1 no. 1 of the WpHG
5.	JMV Verwaltungs GmbH, Heidenheim an der Brenz/Germany	25.10%	allocated pursuant to section 22 para. 1 sentence 1 no. 1 of the WpHG
6.	Voith Familien Verwaltung GmbH, Mannheim/Germany	25.10%	allocated pursuant to section 22 para. 1 sentence 1 no. 1 of the WpHG
7.	Familiengesellschaft J.M. Voith GbR, Mannheim/Germany	25.10%	allocated pursuant to section 22 para. 1 sentence 1 no. 1 of the WpHG

¹ Pursuant to the notifications of December 3, 2014 and December 12, 2014, the entire voting rights of J.M. Voith GmbH & Co. Beteiligungen KG already consisted of voting rights in accordance with sections 21, 22 WpHG (24.91%) and section 25a WpHG (0.19%) on these dates. Pursuant to the notifications of March 31, 2015 and April 1, 2015, the entire voting rights of J.M. Voith GmbH & Co. Beteiligungen KG consisted solely of voting rights in accordance with sections 21, 22 WpHG from that time on.

c) Midea Group – Notification dated February 3, 2016

1.	MECCA International (BVI) Limited/ British Virgin Islands	10.22%	held directly
2.	Midea International Corporation Company Limited/China	10.22%	allocated pursuant to section 22 of the WpHG
3.	Midea Group Co., Ltd. Foshan/China	10.22%	allocated pursuant to section 22 of the WpHG

On May 18, 2016 MECCA International (BVI) Limited (the “bidder”) published its decision to submit a voluntary public takeover bid to acquire all no-par-value bearer shares of KUKA Aktiengesellschaft. The bidder then published the bid document on June 16, 2016 within the meaning of section 11 of the WpÜG, which contained the specific conditions of the takeover bid.

The takeover was completed on January 6, 2017 once all the closing conditions for the takeover bid were met. KUKA Aktiengesellschaft was informed of the following shareholdings of more than 10% of the voting rights – as of January 6, 2017 – by the following persons and companies in January 2017:

Midea Group – Notification dated January 9, 2017

1.	MECCA International (BVI) Limited/ British Virgin Islands	94.55%	held directly
2.	Midea International Corporation Company Limited/China	94.55%	allocated pursuant to section 22 of the WpHG
3.	Midea Group Co., Ltd. Foshan/China	94.55%	allocated pursuant to section 22 of the WpHG

Accordingly, Dr. Loh (SWOCTEM GmbH) as well as Voith Familien Verwaltung GmbH and Familiengesellschaft J.M. Voith GbR (for the entire Voith Group) reported their respective shareholdings in KUKA Aktiengesellschaft as 0%.

Shares with special rights that confer powers of control

There are no shares with special rights conferring powers of control.

Method of voting rights control when employees hold an interest in the share capital and do not directly exercise their rights of control

No employees hold an interest in the share capital within the meaning of section 289 para. 4 no. 5 and section 315 para. 4 no. 5 of the German Commercial Code (HGB).

Legal provisions and provisions of the Articles of Association regarding the appointment and dismissal of Executive Board members and amendments to the Articles of Association

Pursuant to section 6 para. 1 of the Articles of Association, the company's Executive Board must consist of at least two persons. The Supervisory Board determines the number of Executive Board members (section 6 para. 2 of the Articles of Association). The appointment and dismissal of members of the Executive Board are governed in sections 84 and 85 of the Stock Corporation Act (AktG), section 31 of the Co-determination Act (MitbestG) and section 6 of the Articles of Association.

Pursuant to sections 119 para. 1 no. 5 and 179 para. 1 of the Stock Corporation Act (AktG), any changes to the Articles of Association require a resolution by the Annual General Meeting. Section 22 para. 1 of the Articles of Association states that a simple majority of the share capital represented at the Annual General Meeting is sufficient to pass a resolution, provided that a greater majority is not required by law. A greater majority is required in particular for resolutions concerning changes to the company's business purpose, reductions in the share capital and changes to the form of incorporation.

Pursuant to section 11 para. 3 of the Articles of Association, the Supervisory Board is authorized to make amendments to the company's Articles of Association that only affect the wording.

The resolution passed at the Annual General Meeting held on June 10, 2015 also authorized the Supervisory Board to amend the wording of section 4, para. 1 and 5 of the Articles of Association following complete (or partial) execution of the capital increase after Authorized Capital 2015 has been used and, if Authorized Capital 2015 has not been fully used by June 9, 2020, following expiration of the authorization.

With regard to the changes in the Authorized Capital and Conditional Capital 2010 and in the Conditional Capital 2013, the Supervisory Board was/is authorized by resolutions of the Annual General Meetings held on June 5, 2013 and May 28, 2014 to amend the wording of section 4 para. 1, 6 and 7 of the Articles of Association as per the respective issue of subscription shares and all other associated amendments to the Articles of Association that only affect the wording.

Furthermore, the Supervisory Board was authorized by resolution of the Annual General Meeting of May 28, 2014 to amend the wording of section 4 para. 1 and 8 of the Articles of Association after (fully or partially) increasing the share capital after utilizing Conditional Capital 2014 and, in the event this has not been (fully) utilized by May 25, 2016 or June 4, 2018, after expiry of the respective authorizations or deadlines for exercising conversion rights.

Executive Board authorization to issue and buy back shares

Authorized capital

As per the resolution of the Annual General Meeting on June 10, 2015 and section 4 para. 5 of the company's Articles of Association, which was added on the basis of this resolution, the Executive Board, subject to approval by the Supervisory Board, is authorized to increase the company's share capital on or before June 9, 2020 by up to €46,420,808.20 through the issue of new shares in exchange for contributions in cash or in kind on one or more occasions (Authorized Capital 2015). The shareholders shall be granted subscription rights. The new shares may also be underwritten by one or more financial institutions or by enterprises operating according to section 53 para. 1 sentence 1 or section 53b para. 1 sentence 1 or para. 7 of the German Banking Act, as specified by the Executive Board, subject to the obligation that they are offered to the shareholders for subscription (indirect subscription right). However, the Executive Board shall be authorized, subject to approval by the Supervisory Board, to exclude fractional amounts from shareholder subscription rights and to exclude shareholder subscription rights if a capital increase in exchange for contributions in kind takes place for the purpose of acquiring companies or parts of companies or interests in companies or other assets (including third-party claims against the company). Subject to approval by the Supervisory Board, the Executive Board shall be further authorized to exclude shareholder subscription rights in the event of Authorized Capital 2015 being used once or several times in exchange for cash contributions in an amount not exceeding 10% of the existing share capital at the time this authorization comes into effect and – if this value is lower – at the time this authorization is exercised, in order to issue the new shares at a price that is not significantly lower than the price of the company's shares already quoted on the stock exchange at the time the new share issue price is finalized. Shares sold as a result of, and during the term of, the authorization granted at the Annual General Meeting of May 28, 2014 in accordance with section 71 para. 1 no. 8 sentence 5 AktG in conjunction with section 186 para. 3 sentence 4 AktG shall count towards the aforementioned 10% threshold. Furthermore, this 10% threshold shall also include shares issued for the purpose of servicing warrant or convertible bonds, participation rights or participating bonds or a combination of these instruments, provided that these instruments were issued as a result of, and during the term of, an authorization granted at the Annual General Meeting of May 28, 2014 in accordance with the appropriate application of section 186 para. 3 sentence 4 AktG.

The Executive Board, subject to approval by the Supervisory Board, is only permitted to use the aforementioned authorization to exclude shareholder subscription rights to the extent that the pro rata amount of the total shares issued under exclusion of subscription rights does not exceed 20% of the share capital at the time the authorization becomes effective or of the existing share capital at the time this authorization is exercised, should this amount be less. The Executive Board is authorized, subject to approval by the Supervisory Board, to stipulate other details regarding the capital increase and its execution, in particular with regard to share rights and the terms and conditions relating to the issuance of shares.

Conditional capital

Section 4 para. 8 of the Articles of Association stipulates a conditional increase in the company's share capital by up to €33,486,707.80, divided into up to 12,879,503 no-par-value bearer shares (Conditional Capital 2014). The conditional capital increase will only be carried out to the extent that holders or creditors of option or conversion rights or conversion or option obligations exercise their option or conversion rights in exchange for cash for options and or convertible bonds, participation rights or participating bonds (or combinations of these instruments), issued or guaranteed by KUKA Aktiengesellschaft or a dependent Group company of KUKA Aktiengesellschaft up to May 27, 2019 on the basis of the authorization granted to the Executive Board by shareholders at the Annual General Meeting of May 28, 2014, or, to the extent they were obligated to exercise their conversion or option rights, fulfill their conversion or option obligations, or to the extent that KUKA Aktiengesellschaft exercises its option to grant shares of KUKA Aktiengesellschaft wholly or partially instead of paying the monies due, provided no cash settlement or treasury shares or shares of another listed company are used to service the bonds. The new shares will be issued at the option or conversion price to be determined in accordance with the aforementioned authorization resolution. The new shares will participate in the profits as of the beginning of the financial year in which they are created. The Executive Board is authorized, subject to approval by the Supervisory Board, to define the further details of the execution of the conditional capital increase.

There was also Conditional Capital 2010 (section 4 para. 6 of the Articles of Association) and Conditional Capital 2013 (section 4 para. 7 of the Articles of Association) amounting to €2,958.80 and €25,789.40 respectively. This concerns the remaining amounts of the original Conditional Capital 2010 and 2013 after the complete service of convertible bonds issued on February 12, 2013 and July 26, 2013 with a total nominal amount of €150,000,000.00.

Acquisition of treasury shares

As per the resolution passed by the Annual General Meeting on May 28, 2014, the company is authorized, until May 27, 2019, to buy back its own shares in an amount not to exceed 10% of the share capital existing at the time the resolution was passed via the stock market or in the form of a public purchase offer addressed to all shareholders by the company. In doing so, the purchase price (excluding transaction costs) may not be more than 10% higher or lower than the average stock market price defined in detail in the authorization.

The company may exercise this authorization in whole or partial amounts, once or several times; however, it may also be executed by dependent companies or companies in a majority holding of the company, or through a third party on behalf of the company or its dependants.

Pursuant to the above resolution, the Executive Board is also authorized, subject to approval by the Supervisory Board, to treat the treasury shares acquired subject to the exclusion of shareholder subscription rights on the basis of that and earlier authorizations as follows:

- (1) To sell the treasury shares acquired to third parties in connection with company mergers or the acquisition of companies, or parts of companies, or interests in companies, or for the purpose of acquiring other assets (including claims of third parties against the company);
- (2) To sell the treasury shares acquired by means other than via the stock exchange or an offer to all shareholders, provided the shares are sold for cash at a price that is not substantially lower than the quoted stock market price of treasury shares at the time of sale.

However, this authorization only applies subject to the proviso that the shares sold subject to the exclusion of subscription rights pursuant to section 186 para. 3 sentence 4 of the German Stock Corporation Act (AktG) may not, in total, exceed 10% of the share capital, whether on the effective date of the authorization or on the date on which it is exercised. The limit of 10% of the share capital is to include shares

- (a) that are issued to service bonds with warrants or convertible bonds, participation rights or participating bonds, or a combination of these instruments, provided the instruments were issued on the basis of an authorization resolved by the Annual General Meeting of May 28, 2014 pursuant to the corresponding application of section 186 para. 3 sentence 4 of the German Stock Corporation Act (AktG);
- (b) that are issued by exercising an authorization – in effect on the date on which the above authorization took effect or that was resolved by the Annual General Meeting of May 28, 2014, from authorized capital pursuant to section 186 para. 3 sentence 4 of the German Stock Corporation Act (AktG), under exclusion of subscription rights;
- (3) To use the treasury shares acquired to introduce the treasury stock on foreign stock exchanges on which they have not previously been admitted for trading.

Treasury shares acquired on the basis of this authorization or authorizations granted at an earlier time may be canceled without requiring a further resolution at the Annual General Meeting for the cancellation. Cancellation leads to reduction of the share capital. However, the cancellation can also be effected by means of a simplified process without the reduction of share capital by adjusting the proportionate amount of share capital of the remaining shares according to section 8 para. 3 of the German Stock Corporation Act (AktG). The Executive Board is in this case authorized to change the disclosure of the number of shares in the Articles of Association accordingly. This authorization for the acquisition of treasury shares, as well as the resale or cancellation of such shares, may be used once or several times, in whole or in part. Moreover, subject to approval by the Supervisory Board, the Executive Board is authorized to withdraw or resell the treasury shares acquired. Both the purchase and disposal authorization may be exercised in part on one or more occasions.

Significant company agreements that are conditional upon a change of control, and the resulting impact

Employment contracts of Executive Board members

The employment contracts of the Executive Board members contain “change-of-control” clauses. In the event of a change of control within the company (sections 29 para. 2 and 30 of the German Securities Acquisition and Takeover Act (WpÜG)), the Executive Board members are entitled to terminate the employment contract within three months of the change in control occurring, subject to a notice period of three months. In the event of a termination, the Executive Board members will be entitled to a severance payment, which is measured against the compensation due for the remainder of their contract, but is restricted to twice the annual compensation at most.

Syndicated bank loan

On March 30, 2015, KUKA Aktiengesellschaft and its associated companies signed a syndicated loan agreement with a banking syndicate led by Commerzbank AG, Deutsche Bank AG Deutschlandgeschäft branch, Deutsche Bank Luxembourg S.A., UniCredit Bank AG, Landesbank Baden-Württemberg, BNP Paribas S.A. German branch and Credit Suisse AG, which has been amended in part through amendment agreements dated April 29, 2016 and November 28, 2016. According to the loan agreement, the creditors provide a credit volume of up to €4,000,000,000. The facility covers the main credit requirements of KUKA Group (including the furnishing of bank guarantees). The contract contains a change-of-control clause that is typical in the industry, under the terms of which the syndicated banks may demand repayment of the loan in the event that a shareholder (or group of shareholders acting in concert) acquires control of at least 30% of the voting rights of KUKA Aktiengesellschaft, or otherwise has the ability to control the operating policies of the company. An exception to this was the takeover bid of Midea Group already known at the time the amended loan agreement was concluded on November 28, 2016. The creditors may also declare the loan agreement due for repayment in the cases of a delisting, a squeeze-out or the conclusion of a control and/or profit transfer agreement with a company of Midea Group.

Promissory note loan 2015

KUKA Aktiengesellschaft issued a promissory note loan for €250,000,000 on October 9, 2015 led by Landesbank Baden-Württemberg and UniCredit Bank AG.

The terms and conditions of the promissory note loan contain a standard clause referring to a “change-of-control” provision. Accordingly, immediately KUKA takes notice of a change of control, KUKA Aktiengesellschaft must disclose this in accordance with the terms and conditions of the loan. The lenders then have the right, within 30 days of receiving notification of a change of control, to demand repayment of their (pro rata) loan at the next interest due date after receipt of the request for repayment and the interest due up to the date of repayment. A “change of control” within the meaning of the terms and conditions of the loan is given if a person or persons acting in concert directly or indirectly (i) either hold more than 30% of the voting shares, (ii) hold more than 30% of the voting rights in the company and/or (iii) otherwise have the possibility of directing the company’s business policy. The creditors of the promissory note loan (“promissory note investors”) have not exercised their rights to early repayment of the loan within the contractually stipulated period.

Agreements concluded between the company and members of the Executive Board or employees governing compensation in the event of a takeover bid

No agreements have been concluded between the company and members of the Executive Board or employees governing compensation in the event of a takeover bid. The change-of-control clauses in the employment contracts of the Executive Board members do not constitute compensation clauses as defined in sections 289 para. 4 sentence 1 no. 9 and 315 para. 4 sentence 1 no. 9 of the German Commercial Code (HGB).

Declaration regarding corporate management

Reference is made to published information on the KUKA AG website for the declaration regarding corporate management pursuant to section 289a of the German Commercial Code (HGB): <https://www.kuka.com/en-de/investor-relations/corporate-governance/corporate-management>.

Disclaimer

This management report contains forward-looking statements regarding expected developments. These statements are based on current estimates and are naturally exposed to risks and uncertainties. Actual results may differ from the statements contained herein.

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Financial statements

Group income statement

of KUKA Aktiengesellschaft for the period January 1 – December 31, 2016

in € millions	Notes	2015	2016
Sales revenues	1	2,965.9	2,948.9
Cost of sales	2	-2,267.9	-2,182.4
Gross income		698.0	766.5
Selling expenses	2	-251.2	-267.9
Research and development costs	2	-105.4	-126.6
General and administrative expenses	2	-213.1	-228.2
Other operating income	3	23.0	6.6
Other operating expenses	3	-14.8	-18.2
Amortization of goodwill	7	0.0	-1.4
Loss from companies consolidated at equity	10	-3.5	-3.6
Earnings from operating activities		133.0	127.2
Reconciliation to earnings before interest and taxes (EBIT)			
Financing costs included in operating results		2.6	0.0
Earnings before interest and taxes (EBIT)		135.6	127.2
Depreciation and amortization		123.5	78.1
Earnings before interest, tax and amortization (EBITDA)		259.1	205.3
Interest income	4	8.3	8.1
Interest expense	4	-15.7	-13.0
Financial result		-7.4	-4.9
Earnings before tax		125.6	122.3
Taxes on income	5	-39.3	-36.1
Earnings after taxes		86.3	86.2
(of which: attributable to minority interests)		(-0.5)	(-0.4)
(of which: attributable to shareholders of KUKA AG)		(86.8)	(86.6)
Earnings per share (undiluted) in €	6	2.39	2.19
Earnings per share (diluted) in €	6	2.35	2.19

Statement of comprehensive income

of KUKA Aktiengesellschaft for the period January 1 – December 31, 2016

in € millions	Notes	2015	2016
Earnings after taxes		86.3	86.2
Items that may potentially be reclassified to profit or loss			
Translation adjustments		43.3	8.1
Items that are not reclassified to profit or loss			
Changes of actuarial gains and losses	23	5.8	-10.9
Deferred taxes on changes on actuarial gains and losses		-3.8	2.4
Changes recognized directly in equity		45.3	-0.4
Comprehensive income		131.6	85.8
(of which attributable to minority interests)		(-0.5)	(-0.4)
(of which attributable to shareholders of KUKA AG)		(132.1)	(86.2)

Cash flow statement¹

of KUKA Aktiengesellschaft for the financial year 2016

in € millions	2015	2016
Net income after taxes	86.3	86.2
Income taxes	61.2	45.0
Net interest income	7.4	4.9
Depreciation of intangible assets	87.8	35.6
Depreciation of tangible assets	35.7	42.5
Other non-payment related income	-28.5	-20.3
Other non-payment related expenses	10.9	10.0
Cash earnings	260.8	203.9
Result on the disposal of assets	-11.6	0.6
Changes in provisions	-8.8	9.0
Changes in current assets and liabilities		
Changes in inventories	-18.4	-22.8
Changes in receivables and deferred charges	-53.5	-239.1
Changes in liabilities and deferred income (excl. financial debt)	56.7	94.4
Income taxes paid	-51.9	-51.3
Investments/financing matters affecting cash flow	-4.1	-4.3
Cash flow from operating activities	169.2	-9.6
Payments from disposals of fixed assets	9.9	0.2
Payments for capital expenditures on intangible assets	-31.0	-50.2
Payments for capital expenditures on tangible assets	-76.3	-48.7
Payments for investment in financial investments	-1.6	-1.1
Payments received from financial assets in the course of short-term funds management	14.5	9.0
Payments received from the sale of consolidated companies and other business units	47.2	33.5
Payments for the acquisition of consolidated companies and other business units	-44.4	-47.8
Interest received	8.2	7.9
Cash flow from investing activities	-73.5	-97.2
Free cash flow	95.7	-106.8
Dividend payments	-16.9	-19.3
Proceeds from/payments for the acceptance/repayment of bank loans	227.0	-4.1
Payments from grants received	4.1	4.4
Interest paid	-10.1	-7.4
Cash flow from financing activities	204.1	-26.4
Payment-related changes in cash and cash equivalents	299.8	-133.2
Changes due to acquisitions of companies	0.2	0.2
Exchange rate-related and other changes in cash and cash equivalents	4.1	1.0
Changes in cash and cash equivalents	304.1	-132.0
(of which net increase/decrease in restricted cash)	(0.8)	(-2.1)
Cash and cash equivalents at the beginning of the period	192.1	496.2
(of which net increase/decrease in restricted cash)	(2.4)	(3.2)
Cash and cash equivalents at the end of the period	496.2	364.2
(Restricted cash)	(3.2)	(1.1)

¹ See note 30 for further information on cash flow statement.

Group balance sheet

of KUKA Aktiengesellschaft as of December 31, 2016

Assets

in € millions	Notes	Dec. 31, 2015	Dec. 31, 2016
Non-current assets			
Intangible assets	7	423.0	445.1
Property, plant and equipment	8	259.0	261.2
Financial investments	9	3.9	4.9
Investments accounted for at equity	10	6.6	4.2
		692.5	715.4
Finance lease receivables	11	65.2	57.7
Income tax receivables		1.6	–
Other long-term receivables and other assets	15	14.8	16.2
Deferred taxes	5	49.2	48.8
		823.3	838.1
Current assets			
Inventories	12	297.8	318.8
Receivables and other assets			
Trade receivables	13	310.6	353.2
Receivables from construction contracts	14	347.7	535.7
Finance lease receivables	11	8.5	9.6
Income tax receivables		10.5	33.4
Other assets, prepaid expenses and deferred charges	15	87.1	90.9
		764.4	1,022.8
Cash and cash equivalents	16	496.2	364.2
		1,558.4	1,705.8
		2,381.7	2,543.9

Equity and liabilities

in € millions	Notes	Dec. 31, 2015	Dec. 31, 2016
Equity	17		
Subscribed capital	18	100.1	103.4
Capital reserve	19	265.3	306.6
Revenue reserve	20	367.6	430.5
Minority interests	21	-0.5	-0.3
		732.5	840.2
Non-current liabilities, provisions and accruals			
Financial liabilities	25 + 26	294.2	249.6
Other liabilities	27	24.0	28.0
Pensions and similar obligations	23	114.0	122.7
Deferred taxes	5	56.4	45.3
		488.6	445.6
Current liabilities			
Financial liabilities	25 + 26	2.1	1.6
Trade payables		402.0	459.3
Advances received		72.5	95.6
Liabilities from construction contracts	14	217.0	223.7
Income tax liabilities		33.4	40.0
Other liabilities and deferred income	27	290.6	280.0
Other provisions	24	143.0	157.9
		1,160.6	1,258.1
		2,381.7	2,543.9

Development of Group equity

of KUKA Aktiengesellschaft for the financial year 2016

Notes	18	18	19
	Number of shares outstanding	Subscribed capital	Capital reserve
in € millions			
Jan. 1, 2015	35,708,315	92.8	176.5
Result after tax	-	-	-
Other income	-	-	-
Comprehensive income	-	-	-
Capital increase from conversion	2,792,944	7.3	88.8
Dividend of KUKA AG	-	-	-
Change in scope of consolidation/other changes	-	-	-
Jan. 1, 2016	38,501,259	100.1	265.3
Result after taxes	-	-	-
Other income	-	-	-
Comprehensive income	-	-	-
Capital increase from conversion	1,274,211	3.3	41.3
Dividend of KUKA AG	-	-	-
Change in scope of consolidation/other changes	-	-	-
Dec. 31, 2016	39,775,470	103.4	306.6

			20			21
Revenue reserves						
	Translation gains/losses	Actuarial gains and losses	Annual net profit and other revenue reserves	Equity to shareholders	Minority interests	Total
	9.7	-17.2	262.5	524.3	16.8	541.1
	-	-	86.8	86.8	-0.5	86.3
	43.3	2.0	-	45.3	-	45.3
	43.3	2.0	86.8	132.1	-0.5	131.6
	-	-	-	96.1	-	96.1
	-	-	-14.3	-14.3	-	-14.3
	-	-	-5.2	-5.2	-16.8	-22.0
	53.0	-15.2	329.8	733.0	-0.5	732.5
	-	-	86.6	86.6	-0.4	86.2
	8.1	-8.5	-	-0.4	-	-0.4
	8.1	-8.5	86.6	86.2	-0.4	85.8
	-	-	-	44.6	-	44.6
	-	-	-19.3	-19.3	-	-19.3
	-	-	-4.0	-4.0	0.6	-3.4
	61.1	-23.7	393.1	840.5	-0.3	840.2

Group notes

Group segment reporting¹

of KUKA Aktiengesellschaft for the financial year 2016

in € millions	Robotics		Systems	
	2015	2016	2015	2016
Orders received	891.2	1,088.8	1,428.1	1,644.6
Order backlog	233.4	316.1	923.2	1,139.3
Group external sales revenues	881.8	969.6	1,463.3	1,388.1
as a % of Group sales revenues	29.7%	32.9%	49.4%	47.1%
Intra-Group sales	27.8	23.9	8.4	7.4
Sales revenues by division	909.6	993.5	1,471.7	1,395.5
Operating profit/loss	345.8	367.5	253.7	242.4
as a % of sales revenues of the division	38.0%	37.0%	17.2%	17.4%
Earnings before interest and taxes (EBIT)	100.2	100.7	114.7	91.3
as a % of sales revenues of the division	11.0%	10.1%	7.8%	6.5%
as a % of average capital employed (ROCE)	56.6%	51.7%	87.9%	42.8%
Extraordinary expenses ²	-	-	-	-
EBIT adjusted ²	100.2	100.7	114.7	91.3
EBIT adjusted ² as a % of sales revenues of the division	11.0%	10.1%	7.8%	6.5%
EBIT adjusted ² as a % of average capital employed (ROCE)	56.6%	51.7%	87.9%	42.8%
Earnings before interest, tax and amortization (EBITDA)	126.1	123.2	135.6	113.5
as a % of sales revenues of the division	13.9%	12.4%	9.2%	8.1%
Extraordinary expenses ²	-	-	-	-
EBITDA adjusted ²	126.1	123.2	135.6	113.5
EBITDA adjusted ² as a % of sales revenues of the division	13.9%	12.4%	9.2%	8.1%
Capital employed (annual average)	177.1	194.9	130.5	213.1
Capital employed (end of the financial year)	178.0	211.9	124.6	301.6
Assets	430.4	481.3	723.0	909.4
Liabilities	261.6	282.0	619.4	629.1
Investments accounted for at equity	1.6	0.0	2.3	4.2
Earnings of investments accounted for at equity	-3.4	-2.6	-0.1	0.0
Capital expenditure	39.4	29.4	23.5	23.9
Depreciation/amortization of intangible assets	24.4	22.4	18.2	20.0
Impairment losses on intangible and tangible assets	1.0	0.0	2.7	2.2
Depreciation/amortization of interest capitalized under intangible assets	0.5	0.1	0.1	0.0
Employees (Dec. 31)	4,232	4,726	5,146	5,189

¹ See note 30 for more information on Group segment reporting

² Extraordinary effect due to the takeover bid by Midea Group

Swisslog		KUKA AG and other companies		Reconciliation and consolidation		Group	
2015	2016	2015	2016	2015	2016	2015	2016
551.8	742.6	-	-	-32.2	-53.7	2,838.9	3,422.3
491.0	624.7	-	-	-8.6	-31.2	1,639.0	2,048.9
620.8	591.2	-	-	-	-	2,965.9	2,948.9
20.9%	20.0%	-	-	-	-	100.0%	100.0%
0.0	2.3	-	-	-36.2	-33.6	-	-
620.8	593.5	-	-	-36.2	-33.6	2,965.9	2,948.9
97.7	159.6	-	-	0.8	-3.0	698.0	766.5
15.7%	26.9%	-	-	-	-	23.5%	26.0%
-45.9	4.8	-33.1	-41.4	-0.3	-28.2	135.6	127.2
-7.4%	0.8%	-	-	-	-	4.6%	4.3%
-14.5%	1.5%	-	-	-	-	20.0%	16.2%
-	-	-	-	-	28.0	-	28.0
-45.9	4.8	-33.1	-41.4	-0.3	-0.2	135.6	155.2
-7.4%	0.8%	-	-	-	-	4.6%	5.3%
-14.5%	1.5%	-	-	-	-	20.0%	19.8%
24.5	28.2	-26.8	-31.3	-0.3	-28.3	259.1	205.3
3.9%	4.8%	-	-	-	-	8.7%	7.0%
-	-	-	-	-	28.0	-	28.0
24.5	28.2	-26.8	-31.3	-0.3	-0.3	259.1	233.3
3.9%	4.8%	-	-	-	-	8.7%	7.9%
315.9	317.4	54.0	58.3	-0.7	-0.7	676.8	783.0
322.5	312.3	59.3	57.4	-0.8	-0.8	683.6	882.4
578.7	613.3	545.4	597.1	-442.8	-470.3	1,834.7	2,130.8
292.2	342.0	90.3	123.3	-8.9	-14.4	1,254.6	1,362.0
-	0.0	2.7	0.0	-	-	6.6	4.2
-	-	0.0	-1.1	-	0.1	-3.5	-3.6
22.2	20.0	22.5	26.3	-0.6	0.0	107.0	99.6
70.4	23.4	6.3	10.1	-0.1	-0.1	119.2	75.8
-	-	-	-	-	-	3.7	2.2
-	-	-	-	-	-	0.6	0.1
2,555	2,679	367	594	-	-	12,300	13,188

General comments

Accounting principles

KUKA Aktiengesellschaft, headquartered in Augsburg, has prepared its consolidated financial statements for the period ending December 31, 2016 according to the International Financial Reporting Standards (IFRS) of the International Accounting Standards Board (IASB) applicable and endorsed by the European Union as at the balance sheet date. The term IFRS also includes all valid international accounting standards (IAS). The interpretations of the Standing Interpretations Committee (SIC) and the International Financial Reporting Standards Interpretations Committee (IFRS IC) – supplemented by the guidelines stipulated in section 315a para. 1 of the German Commercial Code (HGB) – were also taken into consideration.

The accounting policies used conform to the methods applied in the previous year. Exceptions from this are the standards and interpretations for which application is mandatory for the first time in the 2016 fiscal year and the other reporting changes described under “Changes in accounting and valuation methods”. The consolidated financial statements comply with German law. The currency reported in the consolidated financial statements is the euro. Unless otherwise noted, all amounts in the notes to the accounts are stated in millions of euros (€ million).

With the exception of specific financial instruments reported in fair values, the Group’s consolidated financial statements are prepared based on historical costs. In this case, fair value is defined under IFRS 13 as the price that would be paid by independent market participants in an arm’s length transaction on the measurement date if an asset were sold or a liability transferred.

KUKA Group does not carry any assets with an undefined useful life with the exception of goodwill.

The Group’s consolidated income statement is prepared using the cost of sales method. The consolidated financial statements comply with the classification requirements of IAS 1. The presentation in the Group’s consolidated balance sheet distinguishes between current and non-current assets and liabilities.

The identically worded declarations of compliance with the German Corporate Governance Code pursuant to section 161 of the German Stock Corporation Act (AktG) made by the Executive Board on January 8, 2017 and the Supervisory Board on February 8, 2017 can be accessed on the Internet through the company’s website (www.kuka.com). The Executive Board prepared the consolidated financial statements on February 28, 2017.

Scope of consolidation

In comparison to year-end 2015 the scope of consolidation has changed due to the acquisition, foundation and sale of companies and also due to mergers.

The table below shows the development of the scope of consolidation since January 1, 2016:

Number of fully consolidated companies

Number	Robotics	Systems	Swisslog	Others	Total
As of Jan. 1, 2016	23	40	32	3	98
First-time consolidations	1	2	3	1	7
Deconsolidations	–	-3	–	–	-3
Mergers	–	–	-2	–	-2
As of Dec. 31, 2016	24	39	33	4	100
of which, Germany	1	11	5	3	20
of which, abroad	23	28	28	1	80

Number of companies consolidated at equity

Number	Robotics	Systems	Swisslog	Others	Total
As of Jan. 1, 2016	1	1	–	1	3
First-time consolidations – joint ventures	–	1	–	–	1
Deconsolidations	–	–	–	-1	-1
As of Dec. 31, 2016	1	2	–	–	3
of which, associated companies	1	1	–	–	2
of which, joint ventures	–	1	–	–	1

Additions of companies through establishment

With effect from April 20, 2016, connyun GmbH, Augsburg was founded as a wholly-owned subsidiary of KUKA AG, Augsburg.

In May 2016, Swisslog AG, Buchs/Switzerland and Links Solstice Commercial Brokers LLC Dubai/United Arab Emirates founded Swisslog Healthcare Trading MEA LLC, Dubai/United Arab Emirates. Under the articles of association, Swisslog holds 49.0% (corresponding to <€0.1 million) of the share capital. Based on the contractual provisions, Swisslog has an interest of 100% in the income and determines the entire composition of management. The company is therefore fully incorporated into KUKA Group according to the regulations of IFRS 10.

Swisslog AG, Buchs/Switzerland founded the wholly-owned subsidiary Swisslog Korea Co. Ltd, Bucheon si, Kyeonggi-do/South Korea in the third quarter of 2016.

At the end of September 2016, the company Chang'an Reis Robotic Intelligent Equipment (Chongqing) Co., Ltd., Chongqing/China was founded jointly with a Chinese partner. Since both companies hold 50% of the capital stock and exercise joint control over the founded company, Chang'an has been classified as a joint venture pursuant to the regulations of IFRS 11 and is recognized in the consolidated balance sheet using the "at equity" method according to IAS 28.

Other newly established companies include KUKA Robotics Ireland Ltd., Dublin/Ireland and KUKA Aerospace Holdings LLC, Michigan/USA. Both companies are wholly-owned subsidiaries. A company was also formed to pool the North American aerospace business. This company was also sold in the course of the divestment in December 2016.

Total business operations for the newly founded companies in 2016 are still of minor significance.

Additions of companies through company acquisitions

Tecnilab S.p.A., Cuneo/Italy was acquired during the fiscal year.

Disposals

The disposals relate to the companies IRT S.A., Neuchatel/Switzerland and the liquidation of KUKA Automotive N.V., Houthalen/Belgium in the fourth quarter of 2016.

Mergers

In the second quarter of 2016, with effect from January 1, 2016, Swisslog AG, Buchs/Switzerland was merged with Swisslog IP AG, Buchs/Switzerland. Swisslog IP AG, Buchs/Switzerland was then renamed Swisslog AG, Buchs/Switzerland.

Forte Industrial Equipment Systems Inc., City of Dover/USA was merged into Swisslog Logistics Inc., Newport News/USA in the fourth quarter of 2016 with effect from January 1, 2016.

The merger took place within a segment and therefore does not influence the comparability with the previous year.

Company acquisitions 2016

Tecnilab S.p.A.

All shares in the company Tecnilab S.p.A., Cuneo/Italy were acquired on June 24, 2016. Tecnilab is a leading provider of automation solutions in the pharmaceutical sector with customer relationships in Europe, China and Australia. The company is also the manufacturer and supplier of a key product solution used in automation solutions of the Swisslog segment in the field of Health Care Solutions (HCS). Aside from the aim of greater market penetration, the acquisition also involves pursuing an increase in vertical added value. The company is allocated to the Swisslog segment. The purchase price of €6.0 million was paid fully in cash. Cash and cash equivalents of €0.2 million were transferred. Shares of previously fully consolidated companies were not acquired. The gross amount of trade receivables acquired was €1.9 million. Taking a valuation adjustment of €0.1 million into account, this resulted in a fair value of €1.8 million. Sales revenues of €2.5 million and net income of €0.0 million were attributable to the acquisition during the reporting period. If the company had already been taken over at the beginning of 2016, the contribution to sales revenues would have amounted to €5.2 million and net income would have decreased by €1.6 million.

The following table shows the carrying amounts assumed as a result of the purchase of the divisions immediately prior to the acquisition as well as the opening balance sheet in fair values based on provisional figures.

in € millions	Carrying amounts assumed	Opening balance sheet in fair values
Intangible assets	1.1	3.1
Tangible assets	0.8	0.8
Inventories	1.4	1.4
Receivables and other assets	2.5	2.5
Liabilities and provisions	-7.0	-7.7

The acquired intangible assets consist to a large extent of internally generated assets in the technology sector and customer lists. Receivables and inventories primarily concern orders in house at the time of the acquisition. Contingent liabilities were not transferred. The acquisition resulted in deferred tax liabilities of €0.7 million. The transaction thus led to goodwill of €5.8 million. The goodwill particularly reflects the future synergies in the Swisslog CGU.

Other acquisitions

In the context of the planned expansion of activities in the Swisslog segment, asset deals were conducted in the previous fiscal year both in the USA with PAS, LLC in Lathrop, California/USA and in South Korea with Telecar, Co., Ltd in Bucheon/Korea. The total purchase price amounted to €3.7 million with a fixed purchase price component of €3.2 million and a variable purchase price component of €0.5 million.

Investments in associates and joint ventures

Associates and joint ventures are accounted for by the equity method in accordance with IAS 28. The carrying amount of the investment is entered at the level of the pro rata equity capital. The share of the company's current gains or losses for KUKA is recognized directly in the income statement in the earnings before interest and taxes (EBIT) under the item "Earnings from companies valued at equity".

The stake in KBee AG was increased by a contractual milestone payment of €1.6 million in the first quarter.

The joint venture Chang'an Reis Robotic Intelligent Equipment (Chongqing) Co., Ltd., Chongqing/China was only operational to a minor extent in the period between the company being established and the end of 2016. The carrying amount of €1.9 million at the time of establishment dropped by €0.3 million to €1.6 million in the fourth quarter of 2016 due to the proportionate share of profit.

The at equity result of 2016 in the associate Barrett Technology, LLC, Newton, Massachusetts/USA sold in the fourth quarter amounted to €-1.1 million at the time of the sale.

As of the reporting date, the investment carrying amount of the associated companies KBee AG, Munich, Yawei Reis Robot Manufacturing (Jiangsu) Co., Ltd., Yangzhou/China as well as of the joint venture Chang'an Reis Robotic Intelligent Equipment (Chongqing) Co., Ltd, Chongqing/China, was valued at €4.2 million; the effect on earnings of these companies including Barrett Technology, LLC, Newton, Massachusetts/USA was €-3.6 million.

Consolidation principles

Subsidiaries directly or indirectly controlled by KUKA Aktiengesellschaft ("control concept" according to IFRS 10) are consolidated in the consolidated financial statements according to the rules of full consolidation. Control prevails if there is a right to the variable returns and the possibility for the company to use the control so that thereby the level of returns from the company can be influenced. To determine the point at which the company is included in consolidation or is deconsolidated, the date is crucial on which control is effectively gained or lost.

The consolidated financial statements are based on the financial statements of KUKA Aktiengesellschaft and those of the consolidated subsidiaries and were prepared according to the uniform accounting policies for the Group. Capital consolidation takes place by offsetting the carrying amounts of the investment against the pro rata newly measured equity capital of the subsidiaries at the time of acquisition. In line with IFRS 3, any positive differences are capitalized as goodwill under intangible assets. Any negative differences are recognized in the income statement.

Intra-Group sales, expenses, earnings and receivables and payables are offset, and inter-company profits and losses are eliminated. The deferred tax entries required in connection with the consolidation processes have been recorded.

Guarantees and warranties that KUKA Aktiengesellschaft issues on behalf of consolidated subsidiaries are eliminated provided they do not have an external effect.

Currency translation

Receivables and payables denominated in foreign currency are translated as of the balance sheet date using the average rate of the year. Any associated translation gains or losses are recognized in the income statement. Where the translation gains or losses are the result of foreign currency transactions in respect of supplies and services, these are reported under the cost of sales; translation gains or losses on financial transactions, such as intra-Group loan transactions, are reported in the net interest income.

The annual financial statements of the consolidated foreign subsidiaries are translated from their functional currency (IAS 21) into euros. With the exception of KUKA Robotics Hungária Ipari Kft., Taksony/Hungary, whose functional currency is the euro, this is the respective local currency, since the foreign subsidiaries operate predominantly within their currency area. The Group treats newly resulting derivative goodwill from the acquisition of foreign subsidiaries as assets of the economically independent subsidiary and translates this goodwill at the closing rate, if necessary (IAS 21.47). The resulting exchange differences are recognized in the foreign currency translation reserve. Unrealized price differences from the translation of equity-replacing loans to foreign subsidiaries in foreign currency are reported directly in the aggregate income/loss and so recognized directly in equity. On loss of control these effects are released through profit or loss.

Assets and liabilities are translated at the rate effective on the balance sheet date. Derivative goodwill and equity recognized prior to January 1, 2005 are translated using historical rates. Income and expenses are translated using average rates for the year. Differences arising from the translation of assets and liabilities denominated in foreign currencies compared to the prior year as well as translation differences between the income statement and the balance sheet are recognized in the revenue reserves. In the event of the departure of Group entities, existing exchange differences are then recognized in profit or loss. The following table shows the currency values compared to the previous year:

Country	Currency	Balance sheet date		Average rate	
		Dec. 31, 2015	Dec. 31, 2016	2015	2016
Australia	AUD	1.4897	1.4596	1.4765	1.4886
Brazil	BRL	4.3117	3.4305	3.6916	3.8616
Canada	CAD	1.5116	1.4188	1.4176	1.4664
China	CNY	7.0608	7.3202	6.9730	7.3496
China, Hongkong	HKD	8.4376	8.1751	8.6023	8.5900
Czech Republic	CZK	27.0230	27.0210	27.2850	27.0343
Hungary	HUF	315.9800	309.8300	309.8975	311.4600
India	INR	72.0215	71.5935	71.1752	74.3553
Japan	JPY	131.0700	123.4000	134.2875	120.3133
Korea	KRW	1,280.7800	1,269.3600	1,255.7417	1,284.5650
Malaysia	MYR	4.6959	4.7287	4.3315	4.5842
Mexico	MXN	18.9145	21.7719	17.5995	20.6550
New Zealand	NZD	1.5923	1.5158	1.5906	1.5895
Norway	NOK	9.6030	9.0863	8.9417	9.2927
Romania	RON	4.5245	4.5411	4.4452	4.4908
Russia	RUB	80.6736	64.3000	68.0068	74.2224
Singapore	SGD	1.5417	1.5234	1.5251	1.5278
Sweden	SEK	9.1895	9.5525	9.3545	9.4673
Switzerland	CHF	1.0835	1.0739	1.0676	1.0902
Taiwan	TWD	35.7632	34.1403	35.1982	35.6009
Thailand	THB	39.2480	37.7260	38.0008	39.0424
United Arab Emirates	AED	3.9876	3.8647	4.0428	4.0546
United Kingdom	GBP	0.7340	0.8562	0.7260	0.8189
USA	USD	1.0887	1.0541	1.1096	1.1066

Accounting and valuation principles

Orders received

An order is recognized as an incoming order on receipt of a binding purchase order. Framework agreements are not reported here. However, legally binding order releases for volumes from framework agreements are recognized as orders received.

Order backlog

If a binding customer order has not yet been invoiced or not yet realized as a sale in the case of long-term contract production, an order is recorded as an order backlog.

Revenue recognition

Sales revenues are recognized upon the performance of services or transfer of risk to the customer. Thus, sales revenues are recognized when the products or goods have been delivered or the services performed, the material risks and rewards associated with ownership have been transferred to the purchaser, the amount derived from the sale can be measured reliably, the inflow of economic benefits resulting from the transaction is probable, and the costs associated with the transaction can be measured reliably.

Revenues for long-term construction contracts that meet the criteria of IAS 11 are recognized according to the percentage of completion (POC) method. As a rule, the percentage of completion to be recognized by contract is determined by the cost of work to date as a percentage of the estimated total costs (cost-to-cost method). The profit from the contract is recognized on the basis of the percentage of completion thus determined. To the extent that services performed to date exceed advances received, the contracts are recorded as receivables from construction contracts. If there is a negative balance after deduction of advances, this is recognized as liabilities from construction contracts. Borrowing costs are generally considered for construction contracts in accordance with IAS 23. If necessary, provisions or asset-side impairment losses are recognized for impending losses.

At the beginning of the 2016 fiscal year KUKA decided, for cost-benefit reasons, to no longer take any borrowing costs into account in long-term construction contracts for the time being with effect from the start of the year. For more information on this, please refer to the "Changes in accounting and valuation methods" section.

Cost of sales

The cost of sales comprises the cost of production of the goods sold as well as the acquisition cost of any merchandise sold. In addition to the cost of attributable direct materials and labor, this also comprises indirect costs, including the depreciation and amortization of production plants and intangible assets, write-downs of inventories and the recognized borrowing costs. KUKA Group accounts for provisions for product warranties as part of the cost of sales at the time of revenue recognition. Impending losses from contracts are recognized in the reporting period in which the current estimate for total costs arising from the respective contract exceeds the expected contract revenue.

Business combinations

Business combinations are accounted for using the acquisition method. As the acquirer, KUKA and the acquired company may have already had a relationship that existed before the business combination was intended. If the business combination does in fact lead to a settlement of this pre-existing relationship, KUKA recognizes the resulting gain or loss as the acquirer. The cost of acquisition is measured at the fair value of the assets given up and the liabilities incurred or assumed at the acquisition date. An agreed contingent consideration from KUKA as the acquirer is recognized at fair value at the acquisition date. The identifiable assets acquired and the liabilities (including contingent liabilities) assumed in a business combination are initially measured at their fair values at the acquisition date, irrespective of the extent of any non-controlling interests. Uniform accounting policies are used here. After initial recognition, gains and losses are attributed without limit in proportion to the interest held; a negative balance with respect to non-controlling interests can arise as a result. The non-controlling interests are involved in profit sharing during the reporting period.

Investments in associates and joint ventures

Investments in associates and joint ventures are reported at cost in the first instance. A difference between the cash contribution and pro rata equity capital is recognized directly in equity. Subsequent measurement takes place using the equity method as described in IAS 28. The result of associates or joint ventures is recognized in a separate item of the income statement.

Goodwill

Goodwill is tested for impairment at least annually. To this end, impairment tests are performed in which the carrying amount of goodwill allocated to the defined cash generating units (CGUs) is compared to the recoverable amount. If the carrying amount exceeds the recoverable amount of the cash generating unit, an impairment loss is recognized for the goodwill allocated to this cash generating unit. The recoverable amount is the higher of the cash generating unit's fair value less costs to sell and its value in use. KUKA uses a cash generating unit's value in use to determine its recoverable amount. The data from the detail planning phase from the business plan for the next three years were used as the underlying data to determine the value in use, assuming in subsequent years that the annual cash flows will generally equal those in year three. For the sake of simplification, the perpetuity calculation further assumes that investments equal depreciation/amortization expense and the working capital remains unchanged.

With respect to the segment-specific discount rates as well as the further parameters and their derivation, and also for the identification of the principal items of goodwill, please refer to the discussions under note 7.

Self-developed software and other development costs

Development costs for newly developed products or internally generated intangible assets (e.g. software) are capitalized provided that the technical feasibility and commercialization of the newly developed products are assured, and that this will result in an inflow of economic benefits to the Group (see IAS 38.57 for further requirements). In this context, the costs of production encompass the costs directly and indirectly attributable to the cost of development.

Depreciation commences when the asset is put into use and is recognized over an expected useful life of, as a rule, three to five years, using the straight-line method. Moreover, the value recognized for capitalized costs of development projects not yet completed is subject to annual impairment tests.

Research and development costs that are not eligible for recognition as an asset are recognized as expenses when they are incurred.

Other intangible assets

Purchased intangible assets, predominantly software, patents and trademarks, are recognized at their acquisition cost and are amortized over their expected useful life of usually three to five years using the straight-line method.

Property, plant and equipment

Property, plant and equipment are recognized at acquisition or production costs. Depreciation is generally applied using the straight-line method. The selected depreciation method is continuously reviewed.

Depreciation is based predominantly on the following periods of useful life:

	Years
Buildings	25 – 50
Property facilities	2 – 15
Technical plant and equipment	2 – 15
Other equipment	2 – 15
Factory and office equipment	2 – 15

Impairment losses on intangible and tangible assets are recorded in accordance with IAS 36 if the recoverable amount of the asset is less than its carrying amount. In addition to changes in individual parameters that affect computation such as a significant increase in market yields, a particular focus is placed on changes with an adverse effect on the company in the technological, market, economic or legal environment in which it operates. By means of these indicators KUKA regularly observes whether a triggering event is present that would necessitate an impairment test in accordance with IAS 36. In this context, the recoverable amount is the higher of the fair value less costs to sell and the value in use of the asset in question. If the reasons for an impairment recorded in prior years no longer apply, the impairment is reversed.

Borrowing costs and qualifying assets

Under the provisions of IAS 23, finance costs must be accrued for qualifying assets. Provided they are material, borrowing costs are capitalized for these qualifying assets. Those assets are defined as qualifying assets within KUKA Group for which a period longer than 12 months is required to make them ready for their intended use or sale (IAS 23.5). Examples here within KUKA Group in particular are manufacturing plants, internally-generated intangible assets and long-term construction contracts.

Due to the way the corporation is internally managed and to increase transparency, finance costs included in operating results are eliminated in the reconciliation for the earnings before interest and taxes (EBIT).

At the beginning of the 2016 fiscal year KUKA decided to no longer take any borrowing costs into account for long-term construction contracts for the time being. Please refer to the “Changes in accounting and valuation methods” section for further explanations.

Government grants

In accordance with IAS 20, government grants are recognized only if there is reasonable assurance that the conditions attaching to them will be complied with and that the grants will be received. Government grants related to assets (e.g. investment subsidies and allowances) are deducted from the acquisition or production costs of the relevant asset. Grants related to income are recognized immediately in the income statement.

Finance and operating leases

In the vast majority of cases, KUKA Group acts as the lessee. In connection with finance leases, ownership is attributed to the lessee in cases in which the lessee assumes substantially all the risks and rewards incidental to ownership (IAS 17). In such cases, leases are capitalized as of the date of the lease agreement at their fair value or at the lower present value of the minimum lease payments. Depreciation is recognized by the straight-line method over the useful life or over the lease term if it is shorter. The discounted value of payment commitments in connection with the lease payments is disclosed under other liabilities.

Finance lease agreements for which KUKA Group is the lessor are recognized as a sales and financing transaction. A receivable is valued at the amount of the net investment in the lease and the interest income is recognized in the income statement.

To the extent that KUKA Group has entered into operating leases (as a lessee) according to IAS 17, lease or rent payments are directly recognized as an expense in the income statement and distributed using the straight-line method over the term of the leasing agreement, unless a different systematic basis more closely corresponds with the utilization period. Relevant total future costs are reported in note 30.

Financial instruments

KUKA Group holds both primary financial instruments (e.g. trade receivables or trade payables) and derivative financial instruments (e.g. transactions to hedge the risks of changes in fair value).

Derivative financial instruments are financial contracts whose value is derived from the price of an underlying asset (e.g. stocks, bonds, money market instruments or commodities) or a reference rate (such as currencies, indices or interest rates). They require little or no initial investment and are settled at a future date. Examples of derivative financial instruments include options, forward contracts and interest rate swap transactions. KUKA Group only uses derivative financial instruments to hedge foreign currency risk.

Under IAS 39 the following categories of financial instrument are relevant to KUKA Group (see note 29):

- › Loans and receivables
- › Financial instruments held to maturity
- › Financial assets and financial liabilities held for trading with measurement at fair value through profit or loss.
- › Available-for-sale financial assets
- › Other financial liabilities (financial liabilities measured at amortized cost)

As a general rule, financial instruments are initially recognized when the asset is delivered to or by KUKA (settlement date accounting). Subsequent measurement takes place either at fair value or at amortized cost, depending on the measurement category (see also note 29).

- › Measurement of loans and receivables, financial instruments held to maturity and other financial liabilities takes place at amortized cost after initial recognition.
- › Subsequent measurement of financial assets or financial liabilities held for trading takes place at fair value through profit or loss.
- › Available-for-sale financial assets are subsequently measured at fair value but are not recognized in profit or loss.

Derivatives

KUKA Group recognizes all derivatives at fair value as of the settlement date. The fair value is determined with the aid of standard financial mathematical techniques, using current market parameters such as exchange rates and counterparty credit ratings (mark-to-market method) or quoted prices. Middle rates are used for this calculation.

Derivatives are used to hedge currency fluctuations.

Derivatives with a positive fair value are recognized under other assets. If the fair value of derivatives is negative, this results in recognition under other liabilities.

Investments in non-consolidated companies and financial investments

In KUKA Group, investments in continuing business units that are not material to the net assets, financial position and performance of the Group are reported under available-for-sale financial assets. They are recognized at cost of purchase. Current market values are not available, since no shares are traded in an active market.

Receivables and other assets

Receivables and other assets are recognized at amortized cost, applying the effective interest method with appropriate discounts for all identified individual risks. General credit risk, if detectable, is also accounted for by appropriate valuation allowances. For this purpose, these financial assets are grouped in accordance with similar default risk characteristics and are collectively tested for impairment, and written down if necessary. When calculating any such impairment losses, the empirical default history is taken into account in addition to contractually stipulated payment flows.

The carrying amount of the assets is lowered using separate allowance accounts for impairment losses. Actual defaults result in a write-off of the receivables in question. The maximum theoretically possible default risk corresponds to the carrying amounts. The carrying amounts largely correspond to the market values.

Cash and cash equivalents

Cash and cash equivalents are measured at cost and include all cash funds recognized on the balance sheet, i.e. cash on hand, checks and cash balances at financial institutions with a remaining term of three months or less. Securities with an original remaining term of more than three months are not recognized in this item but under other assets.

Liabilities

Liabilities are recognized on the balance sheet at amortized cost. Payables arising from finance leases are recognized at the present value of future lease payments.

Long-term liabilities with a term of more than one year are discounted to the balance sheet date on the basis of appropriate interest rates where the interest effect is material.

On initial recognition, financial liabilities are carried at fair value less transaction costs. They are measured at amortized cost in subsequent periods; any difference between the amount paid out (less transaction costs) and the settlement value is recognized in the interest result for the term of the loan using the effective interest method. Fees incurred when setting up credit lines are capitalized as credit transaction costs and are recognized as interest expense over the term of the corresponding loan commitment.

Trade payables also include payments due on outstanding supplier invoices. KUKA Group has launched a “supplier finance program” for the purpose of managing trade payables. A separate agreement is made for each supplier based on a framework agreement with banks in which the supplier can discount authorized receivables at the bank at any time (i.e. those that have been approved by KUKA). KUKA Group pays the liability to the bank on the due date, irrespective of the supplier’s discounting date. This gives both suppliers and KUKA added flexibility and security.

Inventories

According to IAS 2, inventories are valued at average cost of acquisition or production. In addition to the direct unit costs, production costs also include appropriate costs for indirect materials and production overheads according to IAS 2. Write-downs to lower net realizable value have been taken to the extent required. In addition to valuation allowing disposal at no net loss, these write-downs also cover all other inventory risk. If the reasons that led to a devaluation of inventories in the past no longer exist, impairment losses are reversed.

Current and deferred taxes

Tax receivables and liabilities are assessed using the expected amount of the reimbursement from or payment to the tax authorities.

Deferred tax assets and liabilities are recorded according to IAS 12 for all temporary differences between the carrying amounts of assets and liabilities on the Group balance sheet and their recognized value for tax purposes (liability method) as well as for tax loss carryforwards. Deferred tax assets for accounting and valuation differences as well as for tax loss carryforwards are only recognized to the extent that there is a sufficiently probable expectation that the corresponding benefit will be realized in the future. Deferred tax assets and liabilities are not discounted. Deferred tax assets are netted against deferred tax liabilities if the tax creditor is the same.

Pension provisions and similar obligations

The measurement of pension provisions and similar obligations is performed according to IAS 19. Pensions and similar obligations comprise obligations of KUKA Group to pay benefits under defined benefit plans. Company obligations from defined benefit plans are determined separately for each defined benefit plan according to actuarial principles. First the retirement benefits are estimated that employees have earned in return for their service in the current period and prior periods. Then these benefits are discounted using the projected unit credit method. In addition to known pensions and vested benefits as of the balance sheet date, this method also takes expected future increases in salaries and pensions into account. The calculation is based on actuarial reports that must be prepared annually based on biometric data. Actuarial gains and losses are recognized in other comprehensive income in the period during which they arise. The company determines the net interest expense (net interest income) by multiplying the net liability (net asset value) at the beginning of the period with the underlying interest rate of the discount of the gross defined benefit pension obligation at the beginning of the period. Past service cost due to changes to the plan is recognized directly in the period in which the change occurs. The standard return on plan assets is recognized in the amount of the discount rate applied to pension obligations. Administrative expenses for plan assets are recognized as part of the revaluation component in other comprehensive income, whereas other administrative costs are allocated to operating profit at the time the costs are incurred. Insurers

hold reinsurance coverage for excess obligations from pre-retirement schemes (Altersteilzeit) based on the "block model". This is recognized using the same interest rate as the corresponding liability. The amount added for obligations from pre-retirement schemes is proportional to the amounts in the applicable collective bargaining agreements.

Other provisions

Other provisions are recognized in the event that there is a current obligation to third parties arising from a past event. It must be possible to estimate the amount reliably, which must then more likely than not lead to an outflow of future resources. Provisions are only recognized for legal and constructive obligations to third parties.

Provisions are recognized for costs of restructuring to the extent that a detailed, formal restructuring plan has been created and communicated to the parties affected by it and it is highly probable that the company can no longer withdraw from these obligations.

No provisions are recognized for future expenses, since these do not represent an external obligation.

Liabilities in the personnel area such as vacation pay, flex-time credits and the statutory German pre-retirement scheme (Altersteilzeit) are recognized under other liabilities.

Liabilities for outstanding vendor invoices are recognized under trade payables.

Provisions are classified as current when it is expected they will be used within the normal business cycle. This may extend for longer than a year in individual cases. Long-term provisions with a term of more than one year are discounted to the balance sheet date on the basis of appropriate interest rates where the interest effect is material.

Assets and liabilities held for sale

A non-current asset (or disposal group) is classified as held for sale if the associated carrying amount is mainly realized by a sales transaction or a distribution to shareholders and not by continued use. For this to be the case, the asset (or disposal group) in its current state under conditions that are established practice and common for the sale/distribution of such assets (or disposal groups) must be immediately available for sale/distribution and such sale/distribution must be highly probable. Non-current assets and disposal groups held for sale are measured at the lower of carrying amount and fair value, less disposal costs, unless the items presented in the disposal group do not fall within the measurement rules of IFRS 5.

Share-based compensation

Also in the 2016 fiscal year KUKA employees of German companies had the opportunity to purchase KUKA shares as part of an employee share program. Graded according to a holding period (vesting period) of one, three and five years, employees receive an additional share as a bonus share for every ten KUKA shares acquired. Rights to additional shares are forfeited if the employment relationship of the beneficiary is terminated before the end of the vesting period. A 50% incentive in the form of extra shares was granted in addition to the subscribed shares. The total number of incentive shares was limited to 75,000 as in the previous year. KUKA employees acquired a total of 17,280 shares, for which 8,640 incentive shares were credited. The KUKA share price at the time the shares were granted was €105.91 (2015: €76.45). This results in an expense of €0.9 million for the 2016 fiscal year (2015: €1.8 million), which was recognized as other operating expenses.

In addition to the employee share program, KUKA also has an annual phantom share program for the executive management team, which was introduced in 2012. The phantom share program for the years 2016 to 2018 is measured as a cash-settled, share-based compensation instrument using the fair value at each respective balance sheet date. The measurement parameters correspond to the phantom share program of KUKA Aktiengesellschaft's Executive Board. The entitlements are paid out at the end of the contractually agreed period. Early payment is possible only under certain conditions when leaving the Group. An amount of €15.1 million (2015: €10.6 million) was set aside on December 31, 2016 for future claims arising from the phantom share program for the executive management team. See the compensation report for further details about the structure of the phantom share program.

Assumptions and estimates

KUKA prepares its consolidated financial statements in compliance with the IFRS standards mandatory in the EU. In certain cases it is necessary for management to make assumptions and estimates. This is common practice in the preparation of the Group's consolidated financial statements. These assumptions and estimates may change over time and differ from the actual amounts determined at a later time. Moreover, management could have made different assumptions and estimates in the same reporting period for similarly justifiable reasons. In the application of accounting policies, the company has made the following discretionary decisions, which in some cases have a significant effect on the amounts in the annual financial statements. These do not include those decisions that represent estimates.

It is necessary to make assumptions and estimates, in particular when addressing the following accounting issues:

- › Definition of the scope of consolidation
- › Calculation of fair value
- › Development costs
- › Goodwill impairments
- › Deferred tax assets on loss carryforwards
- › Trade receivables
- › Receivables and liabilities from construction contracts
- › Pensions and other post-employment benefits
- › Provisions

Definition of the scope of consolidation

Subsidiaries are those companies over which KUKA AG has existing rights enabling it currently to direct their significant operations. Significant operations are business operations which have a material impact on the profitability of a company. Control is therefore only present if KUKA AG is exposed to variable returns as a result of its relationship with a company and has the possibility to influence these returns through its power to control the significant operations. As a rule, the possibility of exercising control is based on KUKA AG having direct or indirect majority voting rights. However, since further parameters are required for the assumption of control over a subsidiary (such as, for example, additional contractual agreements), a judgment must always be made on the overall construct and on this basis an assessment concerning the type of consolidation to be applied. Joint ventures have their basis in joint agreements. A joint agreement is present if KUKA Group shares the management of activities conducted with a third party on the basis of a contractual agreement. Joint management is only present if decisions on significant activities require unanimous agreement from the parties involved. In the case of joint ventures the parties exercising the joint management hold rights to the net assets of the agreement. Joint ventures are accounted for according to the equity method. Associates are also measured by the equity method for which as a rule KUKA AG exercises significant influence based on a shareholding of between 20% and 50%. In both cases all the parameters of the particular relationship are examined for the type of consolidation and the assessment made concerning the type of consolidation.

Calculation of fair value

IFRS 13 defines how to determine fair market value and expands on disclosures related to the fair market value. The standard does not include any requirements regarding the cases for which fair value is to be used. Here, fair value is defined as the price that would be paid by independent market participants in an arm's length transaction at the evaluation date if an asset were sold or a liability transferred. In accordance with IFRS 13, assets and liabilities evaluated at market values are to be attributed to the three levels of the fair value hierarchy. The three levels of the fair value hierarchy are defined as follows:

Level 1

Quoted prices in active markets for identical assets or liabilities.

Level 2

Inputs other than quoted prices that are observable either directly or indirectly.

Level 3

Inputs for assets and liabilities that are not based on observable market data.

Development costs

Development costs are recognized as assets in accordance with the methods described under accounting policies. For the purpose of testing the potential impairment of the amounts recognized as assets, management must make assumptions concerning the expected future cash flows from assets, the applicable discount rates and the timing of the inflow of expected future cash flows. Moreover, assumptions must be made regarding costs yet to be incurred and the period until completion for projects that are still in the development stage.

Goodwill

Assets recognized as goodwill are tested at least once a year for impairment in KUKA Group. This requires an estimate to be made of the value in use for each cash generating unit to which the goodwill has been attributed. To determine the value in use, management must estimate the future cash flows of the respective cash generating units and select an appropriate discount rate for calculating the present value of these cash flows. The selected discount rate, for example, is influenced by volatility in capital markets and interest rate trends. The expected cash flows are also influenced by fluctuations in exchange rates and the expected economic developments. Furthermore, continuous review is necessary to determine whether there is any indication of impairment. In addition to changes in individual parameters that affect computation such as a significant increase in market yields, a particular focus is placed on changes with an adverse effect on the company in the technological, market, economic or legal environment in which it operates. By means of these indicators KUKA regularly observes whether a triggering event is present that would necessitate an impairment test in accordance with IAS 36 for goodwill, but also for other non-current assets. For details about the carrying amounts of the assets recognized as goodwill and the performance of the impairment tests please refer to the discussion under note 7.

Deferred tax assets on loss carryforwards

Deferred tax assets for loss carryforwards are recognized to the extent that it is probable that taxable income will be available such that the loss carryforwards can actually be used. The determination of the amount of deferred tax assets requires an estimate on the part of management of the expected timing and amount of anticipated future taxable earnings as well as future tax planning strategies. For details please refer to the explanations under note 5.

Trade receivables

Impairment of doubtful receivables involves making significant estimates and assessments regarding individual receivables based on the creditworthiness of the respective customer, the current economic trends and the analysis of historical bad debts on a portfolio basis. As far as the company derives the impairment on a portfolio basis using historical default rates, a decrease in the volume of receivables reduces such provisions accordingly and vice versa.

Receivables and liabilities from construction contracts

Long-term construction contracts are recognized using the percentage of completion method. A significant share of business in the Systems and Swisslog segments in particular is related to long-term construction contracts. Revenues are reported based on the percentage of completion. A careful estimate of the progress toward completion is essential here. Depending on the method used to determine the percentage of completion, the most important estimates include the total order costs, the costs yet to be incurred until completion, the total project revenues and risks as well as other assessments. The management team responsible for the respective project continuously monitors all estimates on a monthly basis and adjusts these as needed.

Pensions and other post-employment benefits

Expenditures under defined-benefit plans and other post-employment benefits are determined on the basis of actuarial calculations. The actuarial calculations are prepared on the basis of assumptions with respect to discount rates, future increases in wages and salaries, mortality rates and future pension increases. In line with the long-term orientation of these plans, such estimates are subject to significant uncertainties. Please see note 23 for further details.

Provisions

To a large degree, the designation and measurement of provisions for impending losses from contracts, of provisions for warranty obligations and of litigation provisions involve making estimates.

Long-term construction contracts in particular are awarded based on invitations to tender. KUKA recognizes a provision for impending losses when the current estimated total costs arising from the respective contract exceed the expected total revenue. These estimates may change due to new knowledge as the project progresses. Deficit orders are identified based on continuous project costing. This requires an assessment of the performance standards and warranty costs.

KUKA Group is confronted with litigation in different areas. These proceedings can lead to criminal or civil sanctions or fines. A provision is always recognized when it is likely an obligation will result that will lead to future cash outflows and the amount of which can be reliably assessed. The underlying issues are often complex and associated with great uncertainties. Judgment whether a present obligation arising from a past event is to be recognized on the balance sheet date, whether future cash outflows are probable and the obligation can be reliably assessed is therefore largely at the discretion of management. The company, with the assistance of external legal professionals, regularly assesses the respective stage of the proceeding. New findings can change the assessment and it may be necessary to adjust the provision accordingly. For further details please refer to note 24.

Changes in accounting and valuation methods

KUKA Group did not apply any standards or interpretations for the first time in the 2016 fiscal year that have a material effect on the Group's net assets, financial position or performance. The following revised standards and interpretations were applied for the first time in the consolidated financial statements in the 2016 fiscal year:

- › Amendments to IFRS 10, 12 and IAS 28
- › Amendments to IFRS 11 – Accounting for Acquisitions of Interests in Joint Operations
- › Amendments to IAS 1 – Notes
- › Amendments to IAS 16 and IAS 38 – Clarification of Acceptable Methods of Depreciation and Amortization
- › Amendments to IAS 16 and IAS 41 – Agriculture: Bearer Plants
- › Amendments to IAS 19 – Defined-Benefit Plans: Employee Contributions
- › Amendments to IAS 27 – Equity Method in Separate Financial statements
- › Annual Improvements 2012 – 2014

Some amendments are explained once again in more detail below. Collectively, all the changes have no material impact on KUKA Group's consolidated financial statements.

Amendments to IFRS 11 – Accounting for Acquisitions of Interests in Joint Operations

IASB explained with the amendments how acquisitions of interests in joint operations which represent a business operation within the meaning of IFRS 3 must be accounted for. From this point of view, the purchaser must apply the principles of accounting for corporate mergers and the disclosure requirements pursuant to IFRS 3.

Amendments to IAS 1 – Notes

The amendments are used to help companies exercise professional discretion in relation to the disclosure and presentation of information in the notes. Particularly noteworthy are the new explanations on the potential level of detail of balance sheet and consolidated income statement items, for example, and the clarification that notes should only be presented if their content is significant.

Amendments to IAS 16 and IAS 38 – Clarification of Acceptable Methods of Depreciation and Amortization

The amendments result in further guidelines being provided for determining an acceptable method of depreciation and amortization. Accordingly, revenue-based methods of depreciation and amortization are not permitted for tangible assets and only permitted in specific exceptional cases for intangible assets (rebuttable presumption of inappropriateness).

Amendments to IAS 19 – Defined-Benefit Plans: Employee Contributions

The amendments to IAS 19 clarify the regulations relating to the allocation to service periods of contributions from employees or third parties that are linked to the length of service. It is now also permitted for contributions from employees or third parties to be recorded as current service costs in the period during which the related service was provided if the contributions are independent of the number of years of service.

Altogether, the following standards, standard adjustments and interpretations were approved by the balance sheet date and have in part already been adopted into EU law:

Standard/Interpretation	Effective date	Planned application by KUKA AG
IFRS 9 – Financial Instruments	January 1, 2018	Fiscal year 2018
IFRS 15 – Revenue from Contracts with Customers	January 1, 2018	Fiscal year 2018
IFRS 16 – Leases	January 1, 2019	Fiscal year 2019 ¹
Amendments to IFRS 2 – Classification and Measurement of Share-based Payment Transactions	January 1, 2018	Fiscal year 2018 ¹
Amendments to IFRS 4 – Applying IFRS 9 Financial Instruments with IFRS 4 Insurance Contracts	January 1, 2018	Fiscal year 2018 ¹
Amendments to IFRS 10 and IAS 28 – Sale or Contribution of Assets between an Investor and its Associate or Joint Venture	n. a. ¹	n. a. ²
Amendments to IFRS 15 – Clarifications to IFRS 15 Revenue from Contracts with Customers	January 1, 2018	Fiscal year 2018 ¹
Amendments to IAS 7 – Disclosure Initiative	January 1, 2017	Fiscal year 2017 ¹
Amendments to IAS 12 – Recognition of Deferred Tax Assets for Unrealized Losses	January 1, 2017	Fiscal year 2017 ¹
Amendments to IAS 40 – Transfers of Investment Property	January 1, 2018	Fiscal year 2018 ¹
Amendments to IFRIC 22 – Foreign Currency Transactions and Advance Consideration	January 1, 2018	Fiscal year 2018 ¹
Annual Improvements 2014 – 2016 – Amendments to IFRS 12	January 1, 2017	Fiscal year 2017 ¹
Annual Improvements 2014 – 2016 – Amendments to IFRS 1 and IAS 28	January 1, 2018	Fiscal year 2018 ¹

¹ Pending adoption (endorsement) by the European Union

² Initial application by the IASB has been postponed indefinitely

Pursuant to IAS 23, borrowing costs in connection with long-term construction contracts were capitalized in KUKA Group up to 2015 because long-term construction contracts have to be classified as qualifying assets and an indirect relationship existed in respect of financing extended to the subsidiaries via the Group parent company. Through the improvements achieved in the external financing conditions of KUKA Group, it has proved possible to reduce borrowing costs significantly (2016: 1.4%; 2015: 3.3%). Owing to the fact that determining the interest to be capitalized causes a great amount of internal work, while the capitalized financing costs neither constitute a control parameter in the Group nor result in a higher information content in the financial statements (December 31, 2015: €2.6 million capitalized financing costs), KUKA has decided, for cost-benefit reasons, to initially no longer take borrowing costs into account in the case of long-term construction contracts with effect from the start of the 2016 fiscal year.

Explanation of items in the financial statements

Notes to the Group income statement

1. Sales revenues

Sales revenues include fees and charges billed to customers for goods and services less any sales deductions. Sales revenues primarily include delivered products and downstream services. Services account for €191.6 million (19.3%) of sales revenues in the Robotics division as compared to €175.9 million (19.3%) reported in 2015. At Swisslog, services account for €254.6 million (42.7%) of sales revenues compared to €251.3 million (40.5%) in 2015. Services play a less significant role in the Systems division. The breakdown of sales revenues by business division and region is shown in Group segment reporting.

In connection with construction contracts, sales revenues in the amount of €1,579.0 million were recognized in the reporting year (2015: €1,687.0 million) according to the percentage of completion method.

2. Cost of sales, selling expenses, research & development expenses and general and administrative expenses

The following is a breakdown of the cost of sales, selling expenses, research and development expenses and general and administrative expenses:

in € millions	Cost of sales		Selling expenses		Research and development expenses		General and administrative expenses		Total	
	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016
Cost of materials	1,503.0	1,468.3	6.8	5.1	11.2	9.2	5.0	3.6	1,526.0	1,486.2
Personnel expenses	596.4	605.9	129.1	144.5	61.4	68.4	141.3	149.8	928.2	968.6
Amortization	77.6	34.2	10.9	12.6	13.1	9.3	18.7	20.6	120.3	76.7
Other expenses and income	90.9	74.0	104.4	105.7	19.7	39.7	48.1	54.2	263.1	273.6
Total	2,267.9	2,182.4	251.2	267.9	105.4	126.6	213.1	228.2	2,837.6	2,805.1

Operating costs dropped slightly overall during the fiscal year. Following changes to the accounting guidelines in this area (see “Changes in accounting and valuation methods” section), the cost of sales no longer includes any financing costs for receivables from construction contracts in the other expenses (2015: €2.6 million based on the Group capitalization rate of 3.3%). The research & development expenses include €0.1 million amortization on borrowing costs capitalized in prior years (2015: €0.6 million). Foreign currency gains and losses from operational foreign currency transactions totaling € -0.8 million (2015: €4.6 million) are also recognized in other expenses and income under the cost of sales.

The increase in other expenses and income relating to research & development costs is mainly attributable to the use of external services for R & D projects.

Personnel costs are directly allocated to the functional areas. The following figures result:

in € millions	2015	2016
Wages and salaries	760.6	784.2
Social security payments and contributions for retirement benefits and provident funds	167.6	184.4
(of that for retirement benefits)	(26.2)	(27.1)
Personnel costs	928.2	968.6

Annual average employees and employees at the balance sheet date in KUKA Group:

Employees by functional areas	Annual average		Balance sheet date			
	2015	2016	Total 2015	Total 2016	of which, Germany	of which, abroad
Manufacturing	9,138	8,958	8,665	9,171	2,839	6,332
Sales	1,367	1,461	1,394	1,560	575	985
Administration	1,191	1,205	1,164	1,246	489	757
Research and development	659	834	729	906	602	304
	12,355	12,458	11,952	12,883	4,505	8,378
Apprentices	353	313	348	305	234	71
Total	12,708	12,771	12,300	13,188	4,739	8,449

3. Other operating income and expenses

The items under other operating income and expenses capture income and expenses that are not allocated to the functional categories cost of sales, selling expenses, research & development expenses, general and administrative expenses or otherwise reported separately.

Other operating income dropped from €23.0 million in 2015 to €6.6 million in the current fiscal year 2016. In the previous year, the proceeds from the sale of HLS Group and the Tools and Dies business unit were also included here.

Other operating expenses (2016: €18.2 million; 2015: €14.8 million) include other taxes amounting to €6.8 million (2015: €5.9 million) and an increase of variable purchase price liabilities in 2016 of €4.8 million.

4. Financial result

The net expenses and income in the financial result equated to an expense of €4.9 million in the 2016 fiscal year. This is a marked improvement on the value for the previous year when the financial result was €-7.4 million.

in € millions	2015	2016
Interest income from finance lease	6.9	6.2
Other interest and similar income	1.4	1.9
Other interest and similar income	8.3	8.1
Interest component for allocations to pension provisions	2.5	2.2
Guarantee commissions	0.7	1.1
Interest expense for the convertible bond	6.2	0.3
Interest expense for the promissory note loan	0.8	3.6
Financing costs reclassified to operating results and capitalized	-2.9	-0.3
Foreign currency gains and losses	0.3	2.1
Other interest and similar expenses	4.9	3.0
Other interest and similar expenses	12.5	12.0
Current financial result	-4.2	-3.9
One-off charge on Syndicated Senior Facilities Agreement	1.3	1.0
Interest hedge for the promissory note loan	1.9	-
Financial result	-7.4	-4.9

The interest income amounted to €8.1 million (2015: €8.3 million) which mainly includes income in connection with finance lease and income from short-term investments. Currency effects in the area of financing are shown in the financial result. The net balance of foreign exchange gains and losses in the previous fiscal year led to a foreign currency loss of €2.1 million (2015: €0.3 million). In the reporting period, interest expenditure totaled €13.0 million. Most of this relates to the new promissory note loan placed in October 2015 with interest expenses of €3.6 million and the net interest expense for pensions of €2.2 million (2015: €2.5 million). Due to the conversions of the convertible bonds undertaken since October 2015 and completed in March 2016, interest expenses on the convertible bond fell from €6.2 million in the previous year to €0.3 million. Expenditures on sureties and guarantees amounted to €1.1 million (2015: €0.7 million).

The existing syndicated loan agreement was modified substantially in December 2016. This significant change to the agreement resulted in capitalized transaction costs of €1.0 million being recorded in full as interest expenses during the period under review.

5. Taxes on income/deferred taxes

Tax expense

Income tax expense breaks down by origin as follows:

in € millions	2015	2016
Current taxes	61.2	45.1
(of that relating to other periods)	(-6.7)	(-1.0)
Deferred taxes	-21.9	-9.0
(from temporary differences)	(-19.2)	(-10.7)
(from loss carryforwards)	(-2.7)	(1.7)
Tax expense	39.3	36.1

Of the current expenses for tax on earnings, €7.7 million is attributable to domestic expenditure compared to €11.1 million in 2015, and €37.4 million is attributable to foreign expenditure compared to €50.1 million in 2015.

Deferred tax expenses of €-0.8 million are attributable to domestic operations and €-8.2 million to foreign. This compares with €-4.3 million and €-17.6 million respectively in 2015.

The expected tax expense based on earnings before taxes and the applicable tax rate for the KUKA companies in Germany of 32.0% (2015: 30.0%) leads to the following actual tax expense:

in € millions	2015	2016
Earnings before tax expense	125.6	122.3
Expected tax expense	37.7	39.1
Tax rate-related differences	4.8	2.1
Tax reductions due to tax-exempt income	-9.8	-12.7
Tax increase due to non-deductible expenses	6.8	7.7
Tax arrears (+)/tax credits (-) for prior years	-9.4	-13.5
Changes to allowance on deferred taxes	6.2	11.4
First-time recognition of previously unrecognized deferred tax assets on tax loss carryforwards	-2.6	0.0
Change in deferred taxes on permanent differences	3.1	0.5
Tax impact of investments accounted by the equity method	1.0	0.8
Other differences	1.5	0.7
Taxes on income (actual tax expense)	39.3	36.1

The applicable tax rate in Germany comprises corporate income tax (Körperschaftsteuer) of 15.0% (2015: 15.0%), earned income tax (Gewerbesteuer) based on a uniform tax rate of 16.2% (2015: 14.2%) and the reunification tax (Solidaritätszuschlag) of 5.5% (2015: 5.5%).

In principle, deferred taxes were recognized on the basis of the applicable tax rate for each company in question.

In addition to an existing corporate income tax credit, an amount equal to €0.0 million results after discounting as a non-current tax receivable effective December 31, 2016 (2015: €1.6 million), and an amount of €1.8 million (2015: €1.8 million) as a current tax receivable.

There are no tax credits for which deferred taxes would need to be accounted.

Current tax income in other accounting periods totaling €1.0 million (2015: €6.7 million) resulted from German and foreign operations.

Deferred taxes

The value of deferred tax assets and liabilities due to temporary differences and tax loss carryforwards in the Group is associated with the following items:

in € millions	Deferred tax assets		Deferred tax liabilities	
	Dec. 31, 2015	Dec. 31, 2016	Dec. 31, 2015	Dec. 31, 2016
Non-current assets	10.8	15.6	89.3	88.7
Current assets	69.1	59.4	53.7	66.1
Provisions	43.5	51.3	5.1	4.6
Liabilities	30.1	51.4	15.5	13.2
Subtotal	153.5	177.7	163.6	172.6
Balancing item	-107.2	-127.3	-107.2	-127.3
Valuation allowance	-8.3	-11.4	-	-
Subtotal	38.0	39.0	56.4	45.3
Deferred taxes on temporary differences	38.0	39.0	56.4	45.3
Deferred taxes on tax loss carryforwards	11.2	9.8	-	-
Total	49.2	48.8	56.4	45.3
of that, from items recognized in equity	2.6	5.0	-	-

Valuation allowances to the carrying amount of deferred tax assets are recognized if the realization of the expected benefit of the deferred taxes is not sufficiently probable. The estimates made are subject to change over time, which may result in the reversal of the valuation allowance in subsequent periods.

The recognized values on the balance sheet are written off in the event that the tax benefits that they represent were no longer expected to be realized.

In the loss carryforwards of €294.6 million (2015: €292.5 million), amounts totaling €255.6 million (2015: €240.4 million) are not considered in the accounting of deferred taxes.

Loss carryforwards amounting to €65.1 million (2015: €63.4 million) are available with a time limit and €229.5 million (2015: €229.1 million) is not subject to a time limit.

The loss carryforwards for which deferred taxes were capitalized relate to the total loss carryforwards as follows:

in € millions	Loss carryforwards for which deferred taxes were capitalized		Total existing loss carryforwards	
	Dec. 31, 2015	Dec. 31, 2016	Dec. 31, 2015	Dec. 31, 2016
Swisslog (Deutschland) GmbH	0.0	0.0	0.0	0.0
Reis GmbH & Co. KG Maschinenfabrik	0.0	0.0	46.8	42.7
KUKA Aktiengesellschaft	28.5	10.9	82.3	41.5
Other	23.6	28.1	163.4	210.4
Total	52.1	39.0	292.5	294.6

In conjunction with a major shareholder change, the application of relevant regulations resulted in the lapse of tax loss carryforwards of €29.5 million (thereof during the year under review €11.9 million) according to the German Corporation Tax Act and €40.0 million (thereof during the year under review €12.7 million) according to the German Trade Tax Act and a value adjustment of deferred tax assets on said carryforwards of €6.9 million (of which €4.4 million in the year under review).

Deferred tax income in the amount of €0.0 million (2015: €2.6 million) results from the recognition of deferred tax receivables on loss carryforwards from earlier periods which until now had not been included in or written down from the tax accrual/deferral. Deferred tax assets previously recognized but not recognized in the current year in the amount of €11.4 million (2015: €6.2 million) were not reported. In accordance with IAS 12, deferred tax items must be recognized for the difference between the proportionate equity of a subsidiary recognized on the Group balance sheet and the investment carrying amount of this subsidiary on the tax balance sheet of the parent company (so-called "outside basis differences") if it is likely that this difference will be realized. Since both KUKA Aktiengesellschaft and the subsidiaries in question are corporations, these differences are predominantly tax-exempt under section 8b of the Corporation Tax Law (KStG) upon realization and thus are permanent in nature. According to IAS 12.39, no deferred tax liability should be recognized even for temporary differences (e.g. those resulting from the 5% flat-rate allocation under section 8b KStG) if it is not likely, given control by the parent company, that these differences will reverse in the foreseeable future. Since no such reversal is expected, no deferred tax items had to be recognized on the balance sheet for this purpose. There are outside basis differences in the amount of €13.6 million (2015: €8.9 million).

Overall, the change to deferred tax assets and liabilities of €-10.7 million (2015: €-9.9 million) came from amounts affecting net income totaling €-9.0 million (2015: €-21.9 million) as well as, for the most part, amounts not affecting net income due to changes in pension obligations amounting to €-2.4 million and currency effects amounting to €0.7 million.

Where loss carryforwards have not been written off, it is expected in the five-year planning period that this tax-reducing potential will be utilized via taxable income, which is likely based on the expectations of Group companies.

6. Earnings per share

Undiluted/diluted earnings per share break down as follows:

	2015	2016
Net income for the year attributable to the shareholders of KUKA AG (in € millions)	86.8	86.6
Weighted average number of shares outstanding (No. of shares)	36,138,486	39,596,383
Undiluted earnings per share (in €)	2.39	2.19
Diluted earnings per share (in €)	2.35	2.19

Undiluted earnings per share due to shareholders of KUKA Aktiengesellschaft were calculated in accordance with IAS 33 and the weighted average number of shares outstanding for the year.

In 2015 and up to the first quarter of 2016, earnings per share were diluted by the convertible bond issued in 2013. For more information please refer to the company's 2015 annual report.

In 2016, the weighted average number of shares in circulation was 39,596,383 (2015: 36,138,486 shares). The increase compared to the previous year is due to the full conversion of the convertible bond. In the fourth quarter of 2015, bond units with a nominal value of €102.8 million had already been converted into 2,792,944 shares. The very good performance of the KUKA share prompted KUKA Aktiengesellschaft to exercise its right of redemption. On February 18, 2016 the company gave notice that the convertible bond would be irrevocably canceled as of March 24, 2016 (redemption date). Units of the convertible bond that had not been converted into shares in KUKA Aktiengesellschaft by the redemption date were repaid to the holders at a rate of 100%. Together with the conversions that had taken place prior to the announcement, the remaining units with a nominal value of €46.9 million were converted into 1,274,211 shares in the first quarter of 2016.

Notes to the Group balance sheet: Assets

7. Intangible assets

Schedule of changes in intangible fixed assets in 2016

The breakdown of the intangible fixed asset items and their development through the reporting period are shown in the following table.

Schedule of changes in intangible fixed assets in 2016

in € millions	Acquisition/manufacturing costs						Status as of Dec. 31, 2016
	Status as of Jan. 1, 2016	Exchange rate differences	Additions	Disposals	Change due to business combinations/ others	Reclassifications	
1. Rights and similar assets	254.7	2.2	14.5	50.1	0.1	-1.4	220.0
2. Self-developed software and other development costs	45.1	0.3	20.1	0.6	1.5	2.8	69.2
3. Goodwill	261.9	2.1	-	-	1.9	-	265.9
4. Advances paid	0.0	-	14.5	-	-	0.0	14.5
	561.7	4.6	49.1	50.7	3.5	1.4	569.6

Schedule of changes in intangible fixed assets in 2015

in € millions	Acquisition/manufacturing costs						Status as of Dec. 31, 2015
	Status as of Jan. 1, 2015	Exchange rate differences	Additions	Disposals	Change due to business combinations/ others	Reclassifications	
1. Rights and similar assets	224.1	15.8	11.7	0.4	2.9	0.6	254.7
2. Self-developed software and other development costs	49.2	1.9	18.9	29.8	5.1	-0.2	45.1
3. Goodwill	232.9	17.1	-	-	11.9	0.0	261.9
4. Advances paid	4.5	-	0.0	-	-4.1	-0.4	0.0
	510.7	34.8	30.6	30.2	15.8	0.0	561.7

The column showing business combinations/others includes values from a disposal group in 2015 pursuant to IFRS 5.

Goodwill

Recognized goodwill amounts to €257.5 million (2015: €254.9 million). It is distributed across the cash generating units listed below.

in € millions	Dec. 31, 2015		Dec. 31, 2016	
	Goodwill	WACC (%)	Goodwill	WACC (%)
Aerospace	9.6	13.3	3.3	14.6
Assembly & Test	4.7	13.2	4.7	15.8
Body Structure	45.3	13.6	45.6	16.3
Industries	13.5	13.4	13.5	11.9
Robotics Automotive	3.8	13.7	3.8	12.1
Swisslog	176.2	8.0	186.2	12.0
Other	1.8	13.1	0.4	12.1
Total	254.9		257.5	

The “Robotics Automotive” and “Robotics GI (General Industry)” CGUs are allocated to the Robotics division.

The “Body Structure”, “Assembly & Test”, “Industries”, “Advanced Technology Solutions”, “Pay-on-Production” and “Aerospace” CGUs are allocated to the Systems division.

Goodwill increased by a total of €8.2 million in the fiscal year, namely in the Swisslog CGU as a result of the asset deal with PAS, LLC in Lathrop, California/USA as a result of the asset deal with Telecar, Co., Ltd in Bucheon/Korea and through the acquisition of shares in Tecnilab S.p.A., Cuneo/Italy.

The disposal of business units in the “Aerospace” CGU caused a reduction in the goodwill allocated to this segment of €6.3 million.

Goodwill from the “Other” division of €1.4 million was written down in the fiscal year based on the impairment test. All other amendments to the goodwill listed for each CGU are attributable to the currency effects. The impairment test is based on a three-year detailed planning period and increased steadiness in the last year of the detailed planning, i.e. on a steady return on sales, investments and depreciation. As in the previous year, a moderate perpetual growth rate of 0.5% is applied. The discount rates applied in the financial year before taxes (weighted average cost of capital (WACC)) may be noted from the above table.

The cost of equity capital and borrowing costs were determined on the basis of segment-specific peer groups. The peer group is made up of KUKA’s most important national and international competitors and thus includes companies with similar activity and product portfolios.

Accumulated depreciation and impairment losses						Net carrying amount
Status as of Jan. 1, 2016	Exchange rate differences	Additions	Disposals	Change due to business combinations/ others	Status as of Dec. 31, 2016	Status as of Dec. 31, 2016
124.7	1.4	25.9	50.1	-1.0	100.9	119.1
7.0	0.2	8.3	0.3	–	15.2	54.0
7.0	–	1.4	–	–	8.4	257.5
–	–	–	–	–	–	14.5
138.7	1.6	35.6	50.4	-1.0	124.5	445.1

Accumulated depreciation and impairment losses						Net carrying amount
Status as of Jan. 1, 2015	Exchange rate differences	Additions	Disposals	Change due to business combinations/ others	Status as of Dec. 31, 2015	Status as of Dec. 31, 2015
54.4	–	71.2	–	-0.9	124.7	130.0
18.9	-0.1	16.6	28.4	–	7.0	38.1
7.0	–	0.0	–	–	7.0	254.9
–	–	–	–	–	–	0.0
80.3	-0.1	87.8	28.4	-0.9	138.7	423.0

The market risk premium is deemed as the key component for the CGUs in the WACC calculation. With the exception of Swisslog (6.95%), these premiums amount to 7.0% for all CGUs. The beta factor was determined as a three-year average of the respective peer group; it was 1.125 for the CGUs allocated to the Systems segment (2015: 1.139) except for the Industries CGU 1.104 (2015: 1.134), 1.102 for the CGUs allocated to the Robotics segment (2015: 1.134) and 0.975 for Swisslog (2015: 0.857).

The ratios for the cost of equity capital and the cost of borrowed capital were determined by CGU based on the average leverage ratios of the respective peer group for the last three years. The tax rate used was 29.7% (2015: 30.0%) with the exception of the Swisslog CGU where it was 17.9% (2015: 18.5%).

A 1% higher WACC would only marginally influence the impairment of goodwill – as marginally as a reduction in sales revenues over the entire planning period by 10% with a correspondingly lower cash flow.

Self-developed software and other product development costs

Total expenditures for research and development for the reporting period were €126.6 million compared to €105.4 million in 2015.

According to IAS 38, self-developed software and other product development costs must be capitalized. For the purpose of such capitalization, KUKA Group uses the costs of production which include directly attributable costs as well as an appropriate allocation for overheads and depreciation. Borrowing costs are included in the production costs for qualifying assets based on the Group capitalization rate of 1.4% (2015: 3.3%).

In KUKA Group, development costs are recognized as assets mainly at KUKA Roboter GmbH, KUKA Systems GmbH and at Swisslog Group. The companies are working on several projects involving mechanical systems and power and control software for robots as well as new applications in the area of medical technology and automation solutions. Borrowing costs of €0.1 million (2015: €0.1 million) were accounted for.

In line with IAS 38, development costs with a carrying amount of €54.0 million (2015: €38.1 million) are capitalized. Additions for the 2016 fiscal year totaled €20.1 million compared to €18.9 million in 2015. The items mainly concern self-produced control software for robots, efficiency solutions for automation systems, ERP implementation expenses and self-generated automation expenses.

The amortization of intangible fixed assets results from the statement of changes in intangible fixed assets. The decline in scheduled amortization of rights and similar assets (2016: €25.9 million, 2015: €71.2 million) mostly results from the subsequent measurement of the rights and assets acquired and recognized at fair value in the context of the takeover of Swisslog Group in 2015.

Impairment losses totaling €3.7 million were applied in the previous year in connection with the development of a special machine and a software application.

8. Tangible assets

Schedule of changes in KUKA Group's tangible assets 2016

The breakdown of the tangible asset items and their development through the reporting period are shown in the following table. The investment focuses of the financial year are described in the management report.

Schedule of changes in KUKA Group's tangible assets in 2016

in € millions	Acquisition/manufacturing costs						Status as of Dec. 31, 2016
	Status as of Jan. 1, 2016	Exchange rate differences	Additions	Disposals	Change due to business combinations/ others	Reclassifications	
1. Land, similar rights and buildings including buildings on land owned by third parties	214.2	0.4	6.3	2.8	–	6.1	224.2
2. Technical plant and equipment	120.7	-0.3	19.5	2.0	-2.9	1.9	136.9
3. Other equipment, factory and office equipment	121.7	0.4	20.2	6.7	-0.5	4.0	139.1
4. Advances paid and construction in progress	13.6	0.0	4.5	–	–	-13.4	4.7
	470.2	0.5	50.5	11.5	-3.4	-1.4	504.9
The following amounts have been capitalized under "Technical plant and equipment" due to finance leases in which KUKA Group acts as the lessee:	0.5	–	0.1	0.0	–	–	0.6

Schedule of changes in KUKA Group's tangible assets in 2015

in € millions	Acquisition/manufacturing costs						Status as of Dec. 31, 2015
	Status as of Jan. 1, 2015	Exchange rate differences	Additions	Disposals	Change due to business combinations/others	Reclassifications	
1. Land, similar rights and buildings including buildings on land owned by third parties	165.5	4.0	11.2	2.5	-21.0	57.0	214.2
2. Technical plant and equipment	144.8	1.6	19.2	4.1	-42.7	1.9	120.7
3. Other equipment, factory and office equipment	96.3	1.7	30.1	7.0	-3.9	4.5	121.7
4. Advances paid and construction in progress	63.6	0.0	15.9	0.0	-2.3	-63.6	13.6
	470.2	7.3	76.4	13.6	-69.9	-0.2	470.2
The following amounts have been capitalized under "Technical plant and equipment" due to finance leases in which KUKA Group acts as the lessee:	4.4	0.0	0.1	0.0	-4.0	0.0	0.5

Accumulated depreciation and impairment losses								Net carrying amount
Status as of Jan. 1, 2016	Exchange rate differences	Additions	Disposals	Change due to business combinations/ others	Reclassifications	Status as of Dec. 31, 2016	Status as of Dec. 31, 2016	
72.5	0.2	8.1	2.3	-	-0.1	78.4	145.8	
67.6	0.0	15.5	1.4	-0.6	-0.1	81.0	55.9	
71.1	0.4	18.1	5.9	-0.3	0.1	83.5	55.6	
0.0	0.0	0.8	0.0	-	-	0.8	3.9	
211.2	0.6	42.5	9.6	-0.9	-0.1	243.7	261.2	
0.2	-	0.1	-	-	-	0.3	0.3	

Accumulated depreciation and impairment losses								Net carrying amount
Status as of Jan. 1, 2015	Exchange rate differences	Additions	Disposals	Change due to business combinations/others	Reclassifications	Status as of Dec. 31, 2015	Status as of Dec. 31, 2015	
79.0	0.4	6.6	0.3	-13.2	0.0	72.5	141.7	
90.1	0.6	12.9	3.0	-33.0	0.0	67.6	53.1	
67.3	1.1	16.2	6.9	-6.5	-0.1	71.1	50.6	
-	-	-	-	-	-	0.0	13.6	
236.4	2.1	35.7	10.2	-52.7	-0.1	211.2	259.0	
4.1	0.0	0.1	0.0	-4.0	0.0	0.2	0.3	

The column showing business combinations/others also includes values from a disposal group in 2015 pursuant to IFRS 5.

The depreciation figures result from the schedule of changes shown above. Impairment losses totaling €0.8 million were applied in the current year in connection with a welding system.

Government grants

Grants and allowances of €0.0 million (2015: €0.1 million) were deducted from the acquisition or production costs of the tangible assets.

Government grants totaling €4.3 million (2015: €4.1 million) were received and recognized as directly income-relevant. There were no contingently repayable grants as of the balance sheet date.

9. Financial investments

Financial investments predominantly relate to equity investments where KUKA usually does not hold more than 10% of the voting rights.

10. Investments accounted for at equity

Taken individually or jointly, the three investments accounted for at equity as of December 31, 2016 are of minor significance for KUKA Group (2015: three investments accounted for at equity). For this reason information in the notes pursuant to IFRS 12.B12 and B13 is omitted. The aggregate amount of the shares in the loss of the investments that has to be stated pursuant to IFRS 12.B16 is €3.6 million (2015: €3.5 million). The amount includes the pro rata earnings of Barrett Technology, LLC, Newton, Massachusetts/USA which was sold in the fourth quarter of 2016.

11. Finance lease

KUKA as a lessor

KUKA Toledo Production Operations LLC., Toledo/USA (KTPO) manufactures Jeep Wrangler bodies under the terms of a pay-on-production contract with Chrysler. The contract is set up as a finance lease with KUKA Group acting as lessor.

Because of the existing agreement to supply car bodies to Chrysler, the acquisition of the production system assets was not included on the balance sheet as an asset acquisition, but instead categorized as a finance lease in accordance with IFRIC 4/IAS 17 guidelines and booked as a receivable from finance lease. A non-current lease receivable of €57.7 million (2015: €65.2 million) and a current lease receivable of €9.6 million (2015: €8.5 million) exist as of the balance sheet date. Sales revenues shown on KTPO's balance sheet will thus be reduced by the fictitious leasing rate. The interest component included in the fictitious leasing rate is booked under interest result, while the repayment component of this payment reduces the receivables as per schedule.

Due to the arrangement of the dealing as a full payout lease agreement, future minimum lease payments correspond to the gross investment. The following table shows the reconciliation to the present value of the outstanding minimum lease payments:

in € millions	2015	2016
Future minimum lease payments/ Finance lease gross investments	95.4	83.3
(of that not later than one year)	(14.8)	(15.2)
(of that later than one year and not later than five years)	(80.6)	(68.1)
Unrealized financial income	-21.7	-16.0
Present value of outstanding minimum lease payments	73.7	67.3
(of that not later than one year)	(8.5)	(9.6)
(of that later than one year and not later than five years)	(65.2)	(57.7)

KUKA as a lessee

The finance lease agreements for technical plant and equipment have interest rates between 1.42% p.a. (2015: 1.89% p.a.) and 8.95% p.a. (2015: 10.56% p.a.). Future payments due for finance lease agreements as well as the present values for future leasing payments (the corresponding amounts are recognized under other liabilities) amount to €0.2 million. In the previous year, both the minimum lease payments and the present values were €0.3 million.

For information on operating lease agreements please see note 30 "Contingent liabilities and other financial commitments".

12. Inventories

in € millions	Dec. 31, 2015	Dec. 31, 2016
Raw materials and supplies	97.6	110.9
Work in progress	127.9	120.7
Finished goods	53.4	68.7
Advances paid	18.9	18.5
Inventories	297.8	318.8

The carrying amount of inventories with adjusted valuation in the amount of €123.9 million compares with €134.1 million in 2015 and has been recognized at net realizable value. Write-downs, relative to gross value, amounted to €51.3 million versus €52.7 million in 2015.

13. Trade receivables

As of the balance sheet date, trade receivables amounted to €353.2 million (2015: €310.6 million) and have a term of less than one year.

The following table breaks down receivables by age and recoverability:

in € millions	Not impaired as of the balance sheet date but in arrears by					Total of past due, unimpaired receivables	Impaired receivables before recording of impairment losses	Impairment loss	Carrying amount of impaired receivables	Neither impaired nor past due as of the balance sheet date	Net carrying amount
	Less than 30 days	30 to 60 days	61 to 90 days	91 to 180 days	More than 180 days						
As of Dec. 31, 2015	47.7	18.5	7.4	14.0	9.0	96.6	14.3	-13.2	1.1	212.9	310.6
As of Dec. 31, 2016	48.0	22.5	6.2	7.3	15.9	99.9	15.5	-11.9	3.6	249.7	353.2

With respect to existing receivables that were neither impaired nor in arrears, there were no indications as of the balance sheet date that the obligors would not meet their payment obligations.

Receivables of KUKA Roboter GmbH are regularly sold as part of ABS programs. See note 26 for more details.

Bad debt allowances on trade receivables developed as follows:

in € millions	2015	2016
Impairment losses as of Jan. 1	10.3	13.2
Change in scope of consolidation	-0.2	0.1
Additions	6.3	4.7
Consumption	-1.7	-0.7
Reversals	-1.5	-5.4
Impairment losses as of Dec. 31	13.2	11.9

The total additions of €4.7 million (2015: €6.3 million) break down into additions for specific bad debt allowances of €3.8 million (2015: €5.7 million) and general bad debt allowances of €0.9 million (2015: €0.6 million).

14. Receivables from construction contracts

For receivables from construction contracts, advances received have been offset against costs incurred in connection with the contract, including contributions to earnings on a per contract basis. This results in the following values as of the balance sheet date:

in € millions	Dec. 31, 2015	Dec. 31, 2016
Contract costs and recognized profits	2,542.6	2,814.0
Advances received	2,194.9	2,278.4
Receivables from construction contracts	347.7	535.7
Liabilities from construction contracts	217.0	223.7

Receivables from construction contracts have no specific due date and are not impaired.

15. Other assets, prepaid expenses and deferred charges

in € millions	Dec. 31, 2015	Dec. 31, 2016
Non-current other assets		
Non-current other receivables	8.9	10.6
Other	5.9	5.6
Total	14.8	16.2
Current other assets		
Securities 3 to 12 months	9.2	0.0
Claims on fiscal authorities	29.4	39.4
Other	48.5	51.5
Total	87.1	90.9
Other assets, prepaid expenses and deferred charges	101.9	107.1

Securities in the amount of €9.2 million held on the balance sheet date of the previous year were commercial papers with a remaining term of between three and twelve months.

The claims on fiscal authorities shown are predominantly value added tax receivables.

The following table shows the financial instruments recognized under other assets as outlined in IFRS 7 according to age and impairment:

in € millions	Impaired receivables before recording of impairment losses	Impairment loss	Carrying amount of impaired receivables	Neither impaired nor past due as of the balance sheet date	Net carrying amount
As of Dec. 31, 2015	2.1	-1.8	0.3	36.7	37.0
As of Dec. 31, 2016	1.8	-1.6	0.2	31.7	31.9

There are no other assets that are past due but not yet impaired as of December 31, 2016 or December 31, 2015.

Impairment losses on other assets developed as follows:

in € millions	2015	2016
Impairment losses as of Jan. 1	2.1	1.8
Additions	0.1	-
Reversals	-0.4	-0.2
Impairment losses as of Dec. 31	1.8	1.6

16. Cash and cash equivalents

Cash and cash equivalents include all cash funds recognized on the balance sheet, i.e. cash on hand, checks and cash balances with financial institutions with a remaining term of three months or less.

KUKA Group maintains bank balances exclusively at financial institutions with an excellent credit rating. Furthermore, funds to be invested are distributed across several financial institutions in order to diversify risk.

Cash and cash equivalents of €1.1 million (2015: €3.2 million) are subject to restrictions. In the previous year, these were still related to company acquisitions made in the preceding years and to a government-funded contract in Brazil. There was still a restriction on the government-funded contract in Brazil and a restriction on government funding for eligible development projects with a German company in 2016.

in € millions	Dec. 31, 2015	Dec. 31, 2016
Cash on hand	0.2	0.1
Cash and bank balances	492.8	363.0
Cash with limited availability	3.2	1.1
Total	496.2	364.2

Notes to the Group balance sheet: Equity and liabilities

17. Equity

Changes in equity including changes with no effect on profit or loss are presented in the consolidated statement of changes in equity and in the statement of comprehensive income.

For more information on equity see the notes in the management report under "Disclosures in accordance with section 315 para. 4 of the German Commercial Code (HGB) including accompanying explanations".

18. Subscribed capital

The company's share capital amounts to €103,416,222.00 (2015: €100,103,273.40) and is subdivided into 39,775,470 no-par-value bearer shares outstanding (2015: 38,501,259 shares). Each share carries one vote.

Convertible bond

As discussed in section 6, convertible bond units with a nominal value of €46.9 million were converted into 1,274,211 shares in the first quarter of 2016 as a result of the termination of the convertible bond as of March 24, 2016.

Through the issue of new shares, the total number of KUKA shares has risen by 1,274,211, from 38,501,259 to 39,775,470 shares.

The no-par-value bearer shares have a theoretical portion of the share capital amounting to €2.60.

Pursuant to section 200 of the German Stock Corporation Act (AktG), the issue of new shares caused the company's share capital to rise by €3,312,949 from €100,103,273.40 to €103,416,222.00.

19. Capital reserve

The capital reserve applies to KUKA Aktiengesellschaft.

The change during the reporting year resulted from the conversion of units of the convertible bond in 2016 referred to above. This saw recognized liabilities of €44.6 million exchanged for subscribed capital (€3.3 million) and capital reserve (€41.3 million).

The change in the previous year resulted from the conversion of units of the convertible bond in 2015. This saw recognized liabilities of €96.1 million exchanged for subscribed capital (€7.3 million) and capital reserve (€88.8 million).

20. Revenue reserves

The revenue reserves include:

- › The accumulated retained earnings of KUKA Aktiengesellschaft and its consolidated subsidiaries
- › Consolidation and exchange rate effects
- › Actuarial gains and losses included in provisions for pensions and the associated deferred taxes
- › Components from the employee share program for KUKA employees

Deferred taxes totaling €5.0 million (2015: €2.6 million) from transactions not recognized in profit or loss are included in equity. These are primarily attributable to actuarial gains and losses from pensions.

Based on the resolution of the Annual General Meeting held in 2015, a dividend of €0.50 per share was distributed in the 2016 fiscal year.

21. Minority interests

During the third quarter of 2016, KUKA Group took over the remaining 49.0% of outstanding shares in Faude Automatisierungstechnik GmbH, Gärtringen as part of a progressive acquisition. €0.6 million was reclassified from minority interests to the equity available to shareholders.

An increase of €0.01 million resulted from the 51.0% holding of the minority shareholder Links Solstice Commercial Brokers LLC, Dubai/United Arab Emirates in Swisslog Healthcare Trading MEA LLC, Dubai/United Arab Emirates, a company newly founded in 2016. As KUKA has a 100% share in profit based on contractual regulations, this minority interest will only change as part of any future capital increases (please refer to the "Scope of consolidation" section for further details).

The minority interests in Swisslog Middle East LLC, Dubai/United Arab Emirates also remained unchanged compared to the previous year.

Due to the effects of exchange rate variations and pro rata minority earnings, the carrying amount in equity arising from the minority interests changed from €-0.5 million to €-0.3 million.

22. Management of capital

The primary goal of managing capital for KUKA Group is to support ongoing business operations by providing adequate financial resources and to increase shareholder value.

This requires sufficient equity (equity ratio), liquidity (net liquidity), and a sufficient return on capital employed (ROCE). Management and controlling of the business divisions therefore also takes place based on these key indicators.

		2015	2016
Equity	€ millions	732.5	840.2
/ Total equity	€ millions	2,381.7	2,543.9
Equity ratio	%	30.8	33.0
EBIT	€ millions	135.6	127.2
/ Capital employed (annual average)	€ millions	676.8	783.0
ROCE	%	20.0	16.2
Cash and cash equivalents	€ millions	496.2	364.2
Non-current financial liabilities	€ millions	-294.2	-249.6
Current financial liabilities	€ millions	-2.1	-1.6
Net liquidity	€ millions	199.9	113.0

23. Pension provisions and similar obligations

Pension provisions include liabilities from vested benefits and from current benefits paid to vested and former employees of KUKA Group as well as their surviving dependents. Depending on the legal, economic and tax situation in each of the countries concerned, various retirement benefit systems are in place that are as a rule based on employees' length of service and compensation.

Company retirement benefit coverage in the Group is provided through both defined contribution and defined benefit plans.

Defined benefit plans

Defined benefit plans in KUKA Group primarily concern plans in Germany and the United States. With the acquisition of Swisslog Group, material plans were added in Switzerland, the United Kingdom, Sweden and the United States in 2014. The country-specific characteristics and legal regulations relating to defined benefit plans are presented in the following.

Germany

Obligations in Germany arise from agreements on company pension schemes concluded with various insurance institutions. The prerequisites regarding the type and amount of the entitlement depend on the employee's age and number of years with the company. The benefits include the components old-age pension, disability pension, widow's pension, death benefits and emergency assistance.

USA

The Systems division makes pension payments to its employees after they retire. Employees who entered the worker's union before September 14, 2004 are eligible to participate in the pension plan. The benefits are calculated on the basis of the rate applicable on the date they retire. This rate is composed of the years of service credited to the employee. Eligible employees are also provided with medical care. Owing to their benefit character, the obligations for post-employment medical benefits are also disclosed in this item according to IAS 19. These post-employment benefit provisions represent €0.7 million (2015: €0.7 million) of the total provisions and accruals. The Employee Retirement Income Security Act (ERISA) in the United States provides the legal and regulatory framework for these plans.

The defined benefit plan of the Swisslog division exists for both the salaried workforce and the factory workers. Both plans are managed by an insurance company and are legally independent. Both are closed to new participants and are financed entirely by the employer. Swisslog Group is able to determine the distribution of the assets. The plans are designed to avoid the necessity to provision for the expenses of additional benefits. However, each individual savings basket bears a fixed percentage of interest (guaranteed minimum return).

Switzerland

The plan is affiliated to a larger collective pension fund which is legally independent and exceeds the statutory minimum requirements in Switzerland (Occupational Old Age, Survivors' and Invalidity Pension Provision, BVG). All employees in this are insured for the financial consequences of age, invalidity and death. Contributions to the collective pension fund are made by the employer and employees. Responsibility for investing the assets is borne by the board of the collective pension fund, whilst Swisslog Group is only able to define the investment style. In addition Swisslog Group sets the interest rate on the individual age tranches – subject to the statutory rules. In the event of a deficit for the Swisslog pension tranche within the collective pension fund, various measures can be taken such as a reduced interest rate or additional pension contributions. The level of cover pursuant to BVG exceeds 100% as of December 31, 2016. The Swiss pension plan is based on the BVG 2015 generation tables (without risk sharing).

UK

The British defined benefit plan is also independent and has been closed to new participants since 2001. The assets are invested in an insurance fund. The plan is financed by the employer with the employees. Based on the statutory requirements a valuation is undertaken by an actuary every three years. In the event a deficit is calculated, it is necessary to establish a restructuring plan which also sets the future amortization payments to make good the deficit.

Sweden

The Swedish defined benefit plan is legally mandatory and is based on a collective agreement (agreement between the trade union and the Swedish employers). The plan cannot be changed by the company. The plan is available to all employees born before 1979. It covers the financial consequences of age, invalidity and illness. There is a defined contribution plan for those employees born after 1979. The defined benefit plan is financed by the employer. The liability is covered by plan assets in a pension institution administered by an external insurance company.

Defined contribution plans

For the defined contribution plans, the company pays contributions to a public or private pension insurance carrier. Upon payment of the contributions, the company has no further obligations. Total payments for pensions under defined contribution plans in the amount of €49.5 million compared to €48.0 million in 2015 are disclosed as expenses for the particular year. Under defined benefit plans, the company incurs an obligation to provide the benefits promised by the plan to current and former employees.

Disclosures on actuarial assumptions

The amount of pension obligations (defined benefit obligation) was calculated by actuarial methods for which estimates are unavoidable. In addition to assumptions related to life expectancy, this involves assumptions detailed below, which are dependent on the economic environment for each country in question:

Dec. 31, 2015	Germany	Switzerland	UK	Sweden	USA	Other
Demographic assumptions	RT 2005G	BVG 2010 GT mod without risk sharing	PMA08/PFA08	FFFS 2007:31	RP 2014 RP2006 Blue Collar projected generational, scale MP2015	diverse
Discount factor	2.20%	0.75%	4.00%	2.90%	4.12 – 4.25%	2.20 – 4.25%
Expected rate of return on assets	n/a	0.75%	4.00%	2.90%	4.12 – 4.25%	2.20 – 4.25%
Wage dynamics	0.00 – 2.50%	1.25%	3.30%	2.20%	n/a	0.00 – 2.50%
Pension dynamics	1.00 – 2.50%	0.10%	3.20%	1.70%	n/a	0.00 – 2.00%
Changes in cost of medical service	n/a	n/a	n/a	n/a	5.00 – 7.00%	n/a

Dec. 31, 2016	Germany	Switzerland	UK	Sweden	USA	Other
Demographic assumptions	RT 2005G	BVG 2015 GT without risk sharing	PMA08/PFA08	FFFS 2007:31	RP-2006/MP-2016 Blue Collar; RP2014 projected	diverse
Discount factor	1.50	0.60%	2.60%	2.50%	3.96 – 4.00%	0.75% – 7.60%
Expected rate of return on assets	n/a	0.60%	2.60%	2.50%	3.96 – 4.00%	0.75% – 7.60%
Wage dynamics	0.00 – 2.50%	1.00%	3.10%	2.30%	n/a	1.00 – 4.40%
Pension dynamics	1.00 – 2.50%	0.00%	3.70%	2.30%	n/a	0.00 – 2.50%
Changes in cost of medical service	n/a	n/a	n/a	n/a	6.75%	n/a

The discount factor is determined based on the returns from high-quality, fixed-rate corporate bonds.

Wage dynamics encompass future increases in wages and salaries that are estimated annually by reference to factors such as inflation and economic conditions, among others.

The expected returns are derived from consensus forecasts for the respective asset classes. The forecasts are based on experience, economic data, interest forecasts and stock market expectations.

For funded plans, the pension obligations are reduced by an amount equal to the fund assets. If the fund assets exceed the defined benefit obligation, an asset is recognized according to IAS 19 and disclosed under other assets. If the fund assets do not cover the commitment, the net obligation is recognized as a liability under pension provisions.

Increases or decreases in either the present value of the defined benefit obligation or the fair value of the plan assets may give rise to actuarial gains or losses. This may be caused by factors such as changes in actuarial parameters, changes to estimates for the risk profile of the pension obligations and differences between the actual and expected returns on the fund assets.

The sensitivity analysis illustrates the extent to which changes in actuarial assumptions would impact defined benefit obligations recognized as of December 31, 2016:

Nature and degree of change in actuarial assumptions		Present value of the defined benefit obligation after change	Change ¹
in € millions			
Increase in the discount rate	+0.25%	294.6	-7.4
Decrease in the discount rate	-0.25%	309.8	7.8
Pension increase	+0.25%	308.2	6.2
Pension reduction	-0.25%	298.7	-3.3
Increase in life expectancy	+1 year	312.1	10.1
Decrease in life expectancy	-1 year	292.1	-9.9
Increase in wages and salaries	+0.25%	303.1	1.1
Decrease in wages and salaries	-0.25%	301.0	-1.0

¹ The changes in the actuarial assumptions have no linear impact on the calculation of the present value of the defined benefit obligation due to specific effects such as compound interest. Changing multiple assumptions simultaneously does not always correspond to the cumulative effect because there are interdependencies between factors. A new calculation of the defined benefit obligation must be made for each case.

Funding status of defined benefit pension obligations

in € millions	Germany		Switzerland		UK		Sweden	
	2015	2016	2015	2016	2015	2016	2015	2016
Present value of pension benefits covered by provisions	75.9	78.3	-	-	-	-	-	-
Present value of pension benefits based on plan assets	-	-	139.5	145.0	17.0	21.2	16.7	18.0
Defined benefit obligation	75.9	78.3	139.5	145.0	17.0	21.2	16.7	18.0
Fair value of plan assets	-	-	120.3	125.4	12.8	13.7	14.1	14.5
Net obligation as of Dec. 31	75.9	78.3	19.2	19.6	4.2	7.5	2.6	3.5

Reconciliation/Development of the defined benefit obligation

The reconciliation of the obligation for key items from the beginning to the end of the fiscal year breaks down as follows:

in € millions	Germany		Switzerland		UK		Sweden	
	2015	2016	2015	2016	2015	2016	2015	2016
Jan. 1	83.8	75.9	118.9	139.5	17.8	17.0	16.4	16.7
Change in scope of consolidation and other changes	3.2	-	-	-	-	-	-	-
Current service costs	0.7	0.8	4.0	4.3	0.2	0.2	0.4	0.3
Interest expenses (+)/ interest income (-)	1.6	1.6	1.3	1.0	0.7	0.6	0.4	0.5
Actuarial gains (-)/ losses (+)	-7.7	5.3	6.2	-1.3	-2.7	6.1	-0.6	1.4
Plan curtailments and modifications	-0.5	-	-1.3	0.1	-	-	-	-
Payments made	-5.2	-5.3	-2.6	0.1	-0.1	-0.1	-0.3	-0.3
Translation gains/losses	-	-	13.0	1.3	1.1	-2.6	0.4	-0.6
Dec. 31	75.9	78.3	139.5	145.0	17.0	21.2	16.7	18.0
(of that, funded by provisions)	(75.9)	(78.3)	(-)	(-)	(-)	(-)	(-)	(-)
(of that, based on plan assets)	(-)	(-)	(139.5)	(145.0)	(17.0)	(21.2)	(16.7)	(18.0)

Current service costs and interest expenses totaling €11.0 million (2015: €11.1 million) compare to benefit payments of €7.1 million during the financial year (2015: €10.1 million).

While significant exchange rate effects, especially in the case of the Swiss franc and US dollar, resulted in an increase of €17.3 million in the defined benefit obligation in the 2015 fiscal year, there was a slight reduction in the defined benefit obligation from the currency translation during fiscal 2016. However, there were opposite exchange rate effects in relation to the Swiss franc (DBO increase) and the British pound (DBO reduction) in the 2016 fiscal year.

The plan curtailments reported for 2015 are mostly due to the departure of employees in Switzerland.

Reconciliation/Development of plan assets

The reconciliation of plan assets and asset classes at the close of the fiscal year breaks down as follows:

in € millions	2015	2016
Jan. 1	153.8	171.0
Interest expense (-)/interest income (+)	2.8	2.8
Change in scope of consolidation and other changes	-0.1	-0.1
Actuarial gains (+)/losses (-)	-0.3	2.2
Employer contributions	9.0	9.4
Payments	-7.8	-5.3
Translation gains/losses	13.6	-0.7
Fair value of plan assets as of Dec. 31	171.0	179.3
Cash and cash equivalents	3.5	4.0
Shares	46.6	49.0
Bonds	84.6	88.2
Real estate	17.6	19.8
Other	18.7	18.3
Total	171.0	179.3

USA		Other		Total	
2015	2016	2015	2016	2015	2016
-	-	5.9	8.2	81.8	86.5
27.8	29.5	2.2	1.8	203.2	215.5
27.8	29.5	8.1	10.0	285.0	302.0
21.2	22.7	2.6	3.0	171.0	179.3
6.6	6.8	5.5	7.0	114.0	122.7

USA		Other		Total	
2015	2016	2015	2016	2015	2016
26.9	27.8	11.6	8.1	275.5	285.0
-	-	-4.0	0.8	-0.8	0.8
0.0	-	0.5	0.4	5.8	6.0
1.1	1.1	0.2	0.2	5.3	5.0
-1.4	0.9	0.1	0.8	-6.1	13.2
-	-	-	-	-1.8	0.1
-1.7	-1.3	-0.2	-0.2	-10.1	-7.1
2.9	1.0	-0.1	-0.1	17.3	-1.0
27.8	29.5	8.1	10.0	285.0	302.0
(0.0)	(-)	(5.9)	(8.2)	(81.8)	(86.5)
(27.8)	(29.5)	(2.2)	(1.8)	(203.2)	(215.5)

Investment and risk strategy

The allocation of plan assets to the various asset classes is determined taking potential returns and risks into account. Ratings and forecasts are used as the basis for selecting high-quality stocks and bonds. An optimal portfolio is achieved by ensuring a good balance of risky and risk-free investments. A corresponding committee has been set up for this to monitor the results at least once every half-year and to make changes if necessary to the composition of the plan assets. The company has identified the deterioration of the funded status due to the unfavorable development of plan assets and/or defined benefit obligations as a risk. KUKA monitors its financial assets and defined benefit obligations to identify this risk. In the case of the Swisslog Group pension plans the plan assets are managed by an independent entity as a rule. It provides a regular report so that by this means risk management is possible.

Maturity profile of defined benefit obligations

The following table provides an overview of the expected benefit payments over the next ten years:

in € millions	2015	2016
No later than one year	13.1	13.5
Later than one year and not later than five years	51.5	47.2
Later than five years and not later than ten years	64.4	60.9

24. Other provisions

in € millions	Status as of Jan. 1, 2016	Exchange rate differences	Change in scope of consolidation	Consumption	Reversals	Additions	Status as of Dec. 31, 2016
Warranty commitments and risks from pending transactions	69.0	-0.2	-1.6	31.1	12.4	29.5	53.2
Other provisions	74.0	0.8	-0.7	28.2	4.9	63.7	104.7
Other provisions	143.0	0.6	-2.3	59.3	17.3	93.2	157.9

The provisions for warranty commitments and risks from pending transactions include provisions for impending losses of €4.0 million (2015: €9.1 million) and warranty risks of €49.2 million (2015: €59.9 million).

Of the miscellaneous provisions, €29.4 million (2015: €25.7 million) relates among other items to costs still to be incurred for orders already invoiced and litigation risks of €3.8 million (2015: €5.7 million). This item also includes provisions for costs resulting from the takeover by Midea amounting to €16.1 million which were allocated in the 2016 fiscal year.

The expected remaining term of the other provisions is up to one year.

25. Liabilities

2016	Remaining maturity		Dec. 31, 2016 Total	2015	Remaining maturity		Dec. 31, 2015 Total
	Up to one year	More than one year			Up to one year	More than one year	
in € millions				in € millions			
Financial liabilities	1.6	249.6	251.2	Liabilities due to banks	1.7	249.4	251.1
Trade payables	459.3	-	459.3	Convertible bond	0.4	44.8	45.2
Advances received	95.6	-	95.6	Financial liabilities	2.1	294.2	296.3
Liabilities from construction contracts	223.7	-	223.7	Trade payables	402.0	-	402.0
Income tax liabilities	40.0	-	40.0	Advances received	72.5	-	72.5
Other liabilities and deferred income	280.0	28.0	308.0	Liabilities from construction contracts	217.0	-	217.0
(of that for other taxes)	(62.4)	(-)	(62.4)	Income tax liabilities	33.4	-	33.4
(of that for social security payments)	(11.3)	(-)	(11.3)	Other liabilities and deferred income	290.6	24.0	314.6
(of that liabilities relating to personnel)	(142.1)	(12.0)	(154.1)	(of that for other taxes)	(47.4)	(-)	(47.4)
(of that for leases)	(0.1)	(0.1)	(0.2)	(of that for social security payments)	(12.0)	(-)	(12.0)
(of that for forward exchange transactions for currency hedging)	(13.0)	(-)	(13.0)	(of that liabilities relating to personnel)	(134.6)	(11.7)	(146.3)
Total	1,100.2	277.6	1,377.8	(of that for leases)	(0.1)	(0.2)	(0.3)
				(of that for forward exchange transactions for currency hedging)	(3.8)	(-)	(3.8)
				Total	1,017.6	318.2	1,335.8

26. Financial liabilities/Financing

The existing financial liabilities are mainly the promissory note loan issued in October 2015. In addition, the convertible bond issued in two tranches in 2013 also had to be disclosed in the previous year.

Fixed interest rate agreements

in € millions	Face value as of balance sheet date		Nominal maturity	Original maturity	Net carrying amount		Fair value	
	Dec. 31, 2015	Dec. 31, 2016			2015	2016	2015	2016
	Convertible bond	47.2			–	2.00% p. a.	2013 – 2018	45.2
Promissory note loan								
Tranche 1	142.5	142.5	1.15% p. a. (MS +80bps)	2015 – 2020	141.9	142.1	–	–
Tranche 2	107.5	107.5	1.61% p. a. (MS +100bps)	2015 – 2022	107.1	107.1	–	–
Total promissory note loan	250.0	250.0	Ø 1.35% p. a.	5/7 years	249.0	249.2	–	–

Variable interest rate liabilities to banks

in millions	Net carrying amount		Avg. nominal interest rate	Year of latest maturity
	EUR	CHF		
Liabilities due to banks as of Dec. 31, 2016	0.7 EUR	0.7 EUR	1.91% p. a.	2017
Liabilities due to banks as of Dec. 31, 2015	0.3 EUR	0.3 EUR	6.10% p. a.	2016
	0.8 CHF	0.7 EUR	1.50% p. a.	2016

The nominal interest rates correspond to those interest rates which were payable on outstanding amounts at year-end in the respective currency.

Promissory note loan

KUKA AG issued an unsecured promissory note loan with a total volume of €250.0 million on October 9, 2015. After deducting the transaction costs, KUKA received a total of €248.9 million from this issue.

The total volume was placed in two separate tranches. Tranche 1 has a volume of €142.5 million with an original term to maturity of five years; tranche 2 has a volume of €107.5 million and an original term to maturity of seven years. The issue price was 100.0% with a denomination per unit of €0.5 million. Repayment shall occur at 100.0%, payable in one sum on maturity of each fixed-term tranche. The promissory note loan carries interest coupons of 1.15% for tranche 1 and 1.61% for tranche 2. Interest payments are made at yearly intervals on October 9. Interest of €0.8 million (2015: €0.8 million) was accrued as of the balance sheet date.

The promissory note loans contain a change-of-control clause that entitles the promissory note investors to request repayment of the investment on the next interest payment date after a change of control. The closing of the takeover offer by Midea is a change of control pursuant to the promissory note document; the corresponding repayment date would be on October 9, 2017. KUKA does not expect the change of control to lead to repayment obligations.

On initial recognition, the promissory note loan was carried on the balance sheet at fair value less transaction costs of €1.1 million. The difference between the amount paid out (less transaction costs) and the repayment amount is recognized in the interest result for the term of each tranche using the effective interest method. Taking account of the transaction costs, the effective interest rate rises to 1.24% for tranche 1 and 1.67% for tranche 2.

The carrying amount stands at €249.2 million as of December 31, 2016 (2015: €249.0 million).

Convertible bond

In an announcement on February 18, 2016 KUKA AG irrevocably canceled the February and July 2013 convertible bonds as of March 24, 2016 (repayment date). By this date, further convertible bond units with a nominal value of €46.9 million were converted into 1,274,211 shares in the first quarter of 2016. The non-converted bond units with a nominal value of €0.3 million were repurchased from investors together with the interest accrued during the financial year.

On the balance sheet, the convertible bond was broken down into an equity and a debt component. The market value of the debt component including issue costs is €131.7 million, of which €50.2 million applies to the first tranche from February 2013 and €81.5 million to the second tranche from July 2013. The original resulting value of the equity component was €27.0 million (tranche 1: €7.5 million; tranche 2: €19.5 million including a premium of €10.5 million), which has been recognized as part of the capital reserve with allowance for deferred taxes. It was not changed until the conversion.

The conversions made in 2016 and the redemption of the non-converted convertible bonds caused the liability of the convertible bond existing as of December 31, 2015 and amounting to €45.2 million to be reduced to zero. €3.3 million of the converted amount was transferred to subscribed capital and €41.3 million to the capital reserve. The conversions have resulted in a corresponding reduction of the initial equity capital component, taking the deferred taxes into account.

The interest expense finally recognized for the bond in 2016 was €0.3 million (2015: €6.2 million). Interest payments of €0.5 million (2015: €3.0 million) were made in the first quarter of 2016.

Syndicated loan for KUKA Aktiengesellschaft

As part of a refinancing operation, in April 2015 KUKA AG entered into a syndicated loan agreement (“SFA” – Syndicated Facilities Agreement) with an original term to March 30, 2020. This included two extension options each for one year. The first extension option was exercised in 2016 such that the SFA now ends on March 30, 2021. The second extension option available to KUKA would extend the term by a further year.

The SFA includes a surety and guarantee line (“guaranteed credit line”) in the amount of €140.0 million and a working capital line (“cash line”), which can also be used for sureties and guarantees, in an original amount of €90.0 million. The syndicated loan agreement is unsecured and contains only the customary equal treatment clauses and negative pledges. Financial covenants are agreed for the SFA with thresholds for leverage (net financial liabilities/EBITDA) and interest coverage (EBITDA/net interest expense).

Furthermore the SFA contains a change-of-control clause whereby each consortium bank is entitled in the event of a change of control to cancel its share in the guaranteed credit and cash line at 30 days’ notice and to enforce all claims. The closing of the takeover bid by Midea is a change of control pursuant to the SFA. Therefore KUKA agreed beforehand with the consortium of banks that the SFA should remain in existence after the completion of closing of the takeover bid and that the business relations would be continued. The volume of the SFA was also adjusted to meet the current planning requirements in the same amendment which documented that the syndicate banks waived their entitlement to cancelation. Since the effective date of the amendment on November 28, 2016, KUKA has a guaranteed credit line of €200.0 million and a working capital line with the same volume of €200.0 million, which can also be used for guarantees as previously. KUKA was therefore able to increase its liquidity provisions and take into account the increased guaranteed credit requirement due to the higher volume of business. In addition it was possible to adjust the conditions of the SFA to KUKA’s improved credit rating and to the better market conditions compared with the time of the last refinancing operation.

As of the reporting date, the utilization of the guarantee facility and cash lines from the SFA of KUKA Aktiengesellschaft amounted to a total of €170.9 million (2015: €100.9 million).

Guarantee facility lines from banks and surety companies

The guarantee facility lines pledged by banks and surety companies outside the SFA total €124.0 million (2015: €89.0 million) as of December 31, 2016, and can be utilized up to a total volume of €100.0 million in accordance with the regulations of the SFA. At the end of the reporting year, the company had utilized €87.2 million versus €47.1 million in 2015. None of these bilaterally agreed guarantee facility lines contains a “change-of-control” clause.

Asset-backed securities program

KUKA Group had launched an ABS (asset-backed securities) program in June 2011 with a volume of €25.0 million and maturity date June 30, 2018. Under this program, trade receivables of KUKA Roboter GmbH can be sold in regular tranches to a special purpose vehicle (SPV) of Landesbank Baden-Württemberg. The volume was fully utilized at the balance sheet date (2015: €16.4 million). The SPV finances the purchase of the receivables by issuing securities on the capital market (commercial papers) or by utilizing a corresponding credit line of the Landesbank Baden Württemberg firmly pledged as part of the agreement. Covenants for gearing and leverage are in place for this financing program.

Default guarantees from credit insurers ensure adequate creditworthiness of the receivables sold. KUKA Roboter GmbH assumes the first 1.15% of default risks from the sale of receivables. The retention for this credit risk (continuing involvement) amounted to €0.3 million as of December 31, 2016 (2015: €0.3 million) and was fully written off. KUKA Roboter GmbH manages and processes the receivables that are sold. As in the previous year, no claims to be recognized in the income statement resulted from this.

The ABS program also contains a change-of-control clause. However, the receivables purchaser has already indicated that he will not make use of his right of termination resulting from the change of control.

Financial instruments measured at fair value

The following table shows the breakdown of the financial assets and liabilities measured at fair value:

2016 in € millions	Level 1 ¹	Level 2 ¹	Level 3 ¹	Total
Financial assets	–	9.6	3.0	12.6
Financial liabilities	–	13.0	–	13.0
2015 in € millions	Level 1 ¹	Level 2 ¹	Level 3 ¹	Total
Financial assets	–	4.6	2.1	6.7
Financial liabilities	–	3.8	–	3.8

¹ With regard to the meaning of the individual levels, please refer to the assumptions and estimates/calculation of the fair value

There were no level 1 financial assets in the current fiscal year or the previous year. The assets in level 2 mainly relate to forward exchange transactions carried as assets or liabilities. The rise mainly results from the increased hedging volumes in the Group and substantial fluctuations in the exchange rates of significant currencies such as USD, JPY or GBP. The value is determined with the aid of standard financial mathematical techniques, using current market parameters such as exchange rates and counterparty credit ratings (mark-to-market method) or quoted prices. Middle rates are used for this calculation. The financial assets of level 3 include units in investments not traded on the market and are measured using the discounted future cash flows from the sale of a minority interest.

All other financial instruments are reported at amortized cost and mainly correspond to the book values.

27. Other current/non-current liabilities

The other liabilities for other taxes are primarily from sales, wage and church tax.

Other liabilities in the personnel area are mostly related to obligations from vacation entitlements (2016: €23.6 million; 2015: €20.0 million), flex-time credits (2016: €20.6 million; 2015: €17.5 million), variable compensation elements (2016: €72.9 million; 2015: €69.0 million) and pre-retirement ("Altersteilzeit") (2016: €10.3 million; 2015: €9.7 million). Pre-retirement obligations were reduced by the fair value of the corresponding fund assets (2016: €8.7 million; 2015: €7.3 million). The present value of entitlements from pre-retirement obligations (Defined Benefit Obligation) before offsetting was €19.0 million (2015: €17.0 million). Also reported under this item are, among other things, special payments, inventor's compensation, long-service awards and trade association fees.

Liabilities arising from finance leases are recognized at the present value of future lease payments and disclosed as other liabilities.

28. Assets and liabilities held for sale

As at December 31, 2016, there were no plans to divest business units or sub-units, meaning that there are no circumstances to report as defined in IFRS 5.

29. Financial risk management and financial derivatives

a) Principles of risk management

As part of its general business activities, KUKA Group is exposed to various financial risks, in particular from movements in exchange rates and interest rates as well as counterparty risk and liquidity risk. The purpose of financial risk management is to identify, assess and manage these risks. The aim is to limit the potential negative impact on the financial position.

Derivatives may be a part of financial risk management depending on the risk assessment. Derivatives are exclusively used as hedging instruments with reference to an underlying transaction and are thus not held for trading or other speculative purposes. To reduce the credit risk, hedging transactions are only concluded with financial institutions with an excellent credit rating.

The fundamentals of the Group's financial policy are established by the Executive Board and implemented by Group Treasury in close cooperation with Group companies. Certain transactions require the approval of the CFO. The CFO is also informed on a regular basis of the current risk positions and safeguards.

b) Currency risk

Risks arising from fluctuations in exchange rates that may affect the Group's cash flow – for example from investments, financing and already fixed or planned incoming and outgoing operational payments in foreign currencies – are hedged as they arise or become known through the use of derivative financial instruments with banks or by offsetting opposing cash flows. Hedging may also cover future planned transactions such as planned purchases in foreign currencies, where hedging is used to cover exchange rate fluctuations congruent with the respective maturities and amounts. Group Treasury is principally responsible for the conclusion of hedging transactions with banks.

Exchange rate risks that do not influence the Group's cash flows, e.g. risks resulting from translation of balance sheet and income statement items of foreign KUKA companies into the Group currency (translation risks), are generally not hedged.

All intra-Group loans denominated in foreign currencies were hedged accordingly. KUKA was not exposed to any significant exchange rate risk in the area of financing at the reporting date on account of these hedging activities.

The individual KUKA companies handle their operating activities mainly in the relevant functional currency. However, some KUKA companies are exposed to corresponding exchange rate risk in connection with planned payments outside their own functional currencies. Such risks are hedged according to the policy outlined above. KUKA was not exposed to any significant exchange rate risks from its operating activities at the reporting date on account of these hedging activities.

Currency risk as defined by IFRS 7 arises on account of financial instruments that are denominated in a currency other than the functional currency and are of a monetary nature. Differences resulting from the translation of financial statements into the Group's presentation currency are not taken into consideration. Relevant risk variables are generally all non-functional currencies in which KUKA has financial instruments.

For the presentation of market risks, IFRS 7 requires sensitivity analyses that show the effects of hypothetical changes of relevant risk variables (e.g. interest rates, exchange rates) on profit or loss and shareholders' equity. The periodic effects are determined by relating the hypothetical changes in the risk variables to the balance of financial instruments at the reporting date. It is assumed that the balance at the reporting date is representative for the year as a whole.

Currency sensitivity analyses are based on the following assumptions:

- › Major non-derivative monetary financial instruments (liquid assets, receivables, liabilities) are either directly denominated in the functional currency or are transferred as far as possible into the functional currency through the use of derivatives.
- › Major interest income and interest expense from financial instruments are also either recorded directly in the functional currency or transferred into the functional currency by using derivatives. For this reason, there can be no material effect on the variables considered in this connection.

The most important currency pairs for KUKA are considered when calculating currency sensitivities. This involves applying a hypothetical upward or downward revaluation of the national currency concerned against the relevant foreign currency.

in € millions	Dec. 31, 2015	Dec. 31, 2016
National currency: EUR		
EUR/USD		
EUR +10%	1.0	6.0
EUR -10%	-1.2	-7.4
EUR/JPY		
EUR +10%	-2.6	0.2
EUR -10%	3.2	-0.3
EUR/CNY		
EUR +10%	0.4	0.1
EUR -10%	-0.4	-0.1
EUR/HUF		
EUR +10%	-0.6	-0.8
EUR -10%	0.7	0.9
EUR/BRL		
EUR +10%	-0.1	-2.1
EUR -10%	0.1	2.6
EUR/CHF		
EUR +10%	0.0	-1.1
EUR -10%	0.0	1.4
EUR/SEK		
EUR +10%	-0.3	0.6
EUR -10%	0.3	-0.7
EUR/GBP		
EUR +10%	0.3	-0.3
EUR -10%	-0.3	0.3
EUR/CZK		
EUR +10%	-0.7	-0.2
EUR -10%	0.8	0.2
EUR/INR		
EUR +10%	0.2	0.0
EUR -10%	-0.2	-0.1
EUR/NOK		
EUR +10%	-0.4	-0.1
EUR -10%	0.5	0.2
National currency: CNY		
CNY/USD		
CNY +10%	0.8	0.9
CNY -10%	-0.9	-1.1
CNY/EUR		
CNY +10%	0.0	-0.4
CNY -10%	0.0	0.5
CNY/JPY		
CNY +10%	0.8	-0.5
CNY -10%	-0.9	0.6

in € millions	Dec. 31, 2015	Dec. 31, 2016
National currency: CHF		
CHF/NOK		
CHF +10%	0.2	0.0
CHF -10%	-0.3	0.0
CHF/SEK		
CHF +10%	-1.1	-0.5
CHF -10%	1.3	0.6
CHF/USD		
CHF +10%	-8.3	-8.3
CHF -10%	10.1	10.1
CHF/EUR		
CHF +10%	-7.8	-6.8
CHF -10%	9.6	8.3
National currency: USD		
USD/NOK		
USD +10%	-0.4	-0.1
USD -10%	0.4	0.2
USD/SEK		
USD +10%	-0.2	-0.7
USD -10%	0.3	0.9
USD/EUR		
USD +10%	0.1	-1.1
USD -10%	-0.1	1.3

Assumptions concerning the future cannot be derived from this presentation of currency effects.

c) Interest rate risk

Risks from interest rate changes at KUKA are essentially the result of short-term investments/borrowings in euros as well as the current securities. These are not hedged at the reporting date.

Interest rate risk is presented by way of sensitivity analyses in accordance with IFRS 7. These show the effects of changes in market interest rates on interest payments, interest income and expense, other income components and shareholders' equity. Interest rate sensitivity analyses are based on the following assumptions:

- › Changes in the market interest rates of non-derivative financial instruments with fixed interest rates only affect income if these are measured at their fair value. As such, all financial instruments with fixed interest rates that are carried at amortized cost (e.g. the issued convertible bond and promissory note loan) are not subject to interest rate risk as defined in IFRS 7.
- › Changes in market interest rates affect the interest income or expense of non-derivative variable-interest financial instruments, the interest payments of which are not designated as hedged items of cash flow hedges against interest rate risks.

An increase in market interest rates by 100 basis points at December 31, 2016 would have a positive effect on the result of €3.6 million (2015: €4.9 million positive). A decrease in market interest rates by 100 basis points would have a negative effect on the result of €-2.0 million (2015: €-0.1 million). The assumption was made for financial investments at the balance sheet date that the lower limit amounts to -50 basis points. This hypothetical effect results solely from the financial investments and borrowings with variable interest rates totaling €363.1 million (financial investments) and €0.7 million (borrowings) at the balance sheet date (2015: €495.7 million financial investments and €1.0 million borrowings).

d) Credit risk

KUKA Group is exposed to credit risk from its operating activities and certain financing activities. A default can occur if individual business partners do not meet their contractual obligations and KUKA Group thus suffers a financial loss. With regard to financing activities, important transactions are only concluded with counterparties that have at least an investment grade credit rating.

At the level of operations, the outstanding debts are continuously monitored in each area locally. There are regular business relations with major customers at multiple KUKA Group companies. The associated credit risks are subject to separate quarterly credit rating monitoring as part of the risk management system at the Group's Executive Board level for early detection of an accumulation of individual risks. Added to these measures are comprehensive routine checks implemented at segment level as early as the order initiation process (submission of offers and acceptance of orders) to verify the credit rating of potential business partners. Credit risk is accounted for accordingly through individual impairments.

The maximum exposure to credit risk is represented by the carrying amounts of the financial assets that are carried in the balance sheet (including derivatives with positive market values). No agreements reducing the maximum exposure to credit risk had been concluded as of the reporting date.

e) Liquidity risk

One of KUKA AG's primary tasks is to coordinate and control the Group's financing requirements and to ensure the financial independence of KUKA and its ability to pay on time. With this goal in mind, KUKA Group optimizes the Group's financing and limits its financial risks. The standardized, Group-wide treasury reporting system implemented in 2007 is enhanced on a regular basis for this purpose. New companies are included in consolidation concurrently. In addition, the Group's overall liquidity risk is reduced by closely monitoring Group companies and their control of payment flows. This entailed the successful introduction of a new Group-wide treasury management system in 2014.

As a first step to ensure the payment capability at all times and the financial flexibility of KUKA Group, a liquidity reserve is kept by KUKA Aktiengesellschaft in the form of credit lines and cash funds. For this purpose, KUKA has placed a promissory note loan, signed a syndicated facilities agreement with a consortium of banks and arranged for surety companies and banks to commit guarantee facility lines. The funding and guarantee requirements for business operations are ensured to a large extent internally by transferring cash funds (intercompany loans) and providing guarantees from the banks and the Group itself. This ensures that Group-wide liquidity management takes place at the individual company level, thereby further optimizing the Group's financing on the whole.

The following figures show the commitments for undiscounted interest and redemption repayments for the financial instruments subsumed under IFRS 7:

Dec. 31, 2016 in € millions	Cash flow 2017	Cash flow 2018	Cash flow 2019 – 2021	Cash flow 2022 et seq.
Non-current financial liabilities	3.4	3.4	151.0	109.2
Current financial liabilities	1.4	–	–	–
Trade payables	459.3	–	–	–
Other non-current liabilities	–	0.1	0.1	–
(of that for leases)	(–)	(0.1)	(0.1)	(–)
Other current liabilities	105.3	–	–	–
(of that for leases)	(0.1)	(–)	(–)	(–)

Dec. 31, 2015 in € millions	Cash flow 2016	Cash flow 2017	Cash flow 2018 – 2020	Cash flow 2021 et seq.
Non-current financial liabilities	4.3	7.0	195.1	119.7
Current financial liabilities	1.0	–	–	–
Trade payables	402.0	–	–	–
Accounts payable to affiliated companies	0.0	–	–	–
Other non-current liabilities	–	0.1	0.1	–
(of that for leases)	(–)	(0.1)	(0.1)	(–)
Other current liabilities	133.0	–	–	–
(of that for leases)	(0.1)	(–)	(–)	(–)

All financial instruments are included which were held at the balance sheet dates and for which payments have already been contractually agreed. Foreign currency amounts are expressed at the spot rate on the key date. The variable interest payments from the financial instruments were determined on the basis of the interest rates last fixed prior to December 31, 2016. Financial liabilities repayable at any time are always allocated to the earliest period.

f) Hedges

Hedges are used by KUKA Group exclusively in the form of forward exchange transactions to secure existing balance sheet items as well as to hedge future payment flows. These are exclusively for the purpose of hedging currency risk.

Other disclosures on financial instruments

The following shows the carrying amounts of the financial instruments by measurement category according to IAS 39:

in € millions	Abbreviation	Dec. 31, 2015	Dec. 31, 2016
Available-for-Sale Financial Assets	AfS	2.1	3.1
Held-to-Maturity	HtM	9.2	0.0
Loans and Receivables	LaR	1,179.6	1,277.3
Financial Assets Held for Trading	FAHfT	4.6	9.6
Total financial instruments (assets)		1,195.5	1,290.0
Financial Liabilities Measured at Amortized Cost	FLAC	827.6	805.8
Financial Liabilities Held for Trading	FLHfT	3.8	13.0
Total financial instruments (liabilities)		831.3	818.8

Carrying amounts and fair values by measurement categories for 2016

The carrying amounts and the fair values are derived from the following table:

Assets

in € millions	IAS 39 measurement category	Net carrying amount/ status as of Dec. 31, 2016	of that: other assets and liabilities not covered by IFRS 7	of that: other assets and liabilities covered by IAS 17	Net carrying amount of financial instruments/ status as of Dec. 31, 2016	Fair value/ status as of Dec. 31, 2016
Financial investments		4.9	–	–	4.9	4.9
(of that loans)	LaR	(1.8)	(–)	(–)	(1.8)	(1.8)
(of that participations)	AfS	(3.1)	(–)	(–)	(3.1)	(3.1)
(of that participations at cost)	LaR	(–)	(–)	(–)	(–)	(–)
Investments accounted for by the equity method	n. a.	4.2	4.2	–	–	–
Long-term finance lease receivables	n. a.	57.7	–	57.7	–	–
Other long-term receivables and other assets		16.2	11.5	–	4.7	4.7
(of that derivatives without a hedging relationship)	FAHFT	(0.7)	(–)	(–)	(0.7)	(0.7)
(of that trade receivables)	LaR	(–)	(–)	(–)	(–)	(–)
(of that from the category LaR)	LaR	(4.0)	(–)	(–)	(4.0)	(4.0)
(of that other)	n. a.	(11.5)	(11.5)	(–)	(–)	(–)
Trade receivables	LaR	353.2	–	–	353.2	353.2
Receivables from construction contracts	LaR	535.7	–	–	535.7	535.7
Accounts receivable to affiliated companies	LaR	–	–	–	–	–
Current finance lease receivables	n. a.	9.6	–	9.6	–	–
Other assets, prepaid expenses and deferred charges		90.9	51.7	0	39.2	39.2
(of that derivatives without a hedging relationship)	FAHFT	(8.9)	(–)	(–)	(8.9)	(8.9)
(of that derivatives with a hedging relationship)	FAHFT	(0.0)	(–)	(–)	(0.0)	(0.0)
(of that other from the category LaR)	LaR	(18.4)	(–)	(–)	(18.4)	(18.4)
(of that other from the category HtM)	HtM	(0.0)	(–)	(–)	(0.0)	(0.0)
(of that other)	n. a.	(63.6)	(51.7)	(–)	(11.9)	(11.9)
Cash and cash equivalents	LaR	364.2	–	–	364.2	364.2
Total financial instruments (assets)					1,301.9	1,301.9

Liabilities

in € millions	IAS 39 measurement category	Net carrying amount/status as of Dec. 31, 2016	of that: other assets and liabilities not covered by IFRS 7	of that: other assets and liabilities covered by IAS 17	Net carrying amount of financial instruments/status as of Dec. 31, 2016	Fair value/status as of Dec. 31, 2016
Non-current financial liabilities	FLAC	249.6	–	–	249.6	249.6
Other non-current liabilities		28.0	27.9	0.1	–	–
(of that for leases)	n. a.	(0.1)	(–)	(0.1)	(–)	(–)
(of that other)	n. a.	(27.9)	(27.9)	(–)	(–)	(–)
Current financial liabilities	FLAC	1.6	–	–	1.6	1.6
Trade payables	FLAC	459.3	–	–	459.3	459.3
Liabilities from construction contracts	n. a.	223.7	223.7	–	–	–
Accounts payable to affiliated companies	FLAC	0.0	–	–	0.0	0.0
Other current liabilities, prepaid expenses and deferred charges		279.8	171.4	0.1	108.3	108.3
(of that for leases)	n. a.	(0.1)	(–)	(0.1)	(–)	(–)
(of that derivatives without a hedging relationship)	FLHFT	(13.0)	(–)	(–)	(13.0)	(13.0)
(of that other from the category FLAC)	FLAC	(95.3)	(–)	(–)	(95.3)	(95.3)
(of that other)	n. a.	(171.4)	(171.4)	(–)	(–)	(–)
Total financial instruments (liabilities)					818.8	818.8

Carrying amounts and fair values by measurement categories for 2015

Assets

in € millions	IAS 39 measurement category	Net carrying amount/status as of Dec. 31, 2015	of that: other assets and liabilities not covered by IFRS 7	of that: other assets and liabilities covered by IAS 17	Net carrying amount of financial instruments/status as of Dec. 31, 2015	Fair value/status as of Dec. 31, 2015
Financial investments		3.9	–	–	3.9	3.9
(of that loans)	LaR	(1.8)	(0.0)	(–)	(1.8)	(1.8)
(of that participations)	AfS	(2.1)	(–)	(–)	(2.1)	(2.1)
(of that participations at cost)	LaR	(0.0)	(–)	(–)	(0.0)	(0.0)
Investments accounted by the equity method	n. a.	6.6	6.6	–	–	–
Long-term finance lease receivables	n. a.	65.2	–	65.2	–	–
Other long-term receivables and other assets		14.8	9.8	0.0	5.0	5.0
(of that from the category LaR)	LaR	(5.0)	(–)	(–)	(5.0)	(5.0)
(of that other)	n. a.	(9.8)	(9.8)	(–)	(–)	(–)
Trade receivables	LaR	310.6	–	–	310.6	310.6
Receivables from construction contracts	LaR	347.7	–	–	347.7	347.7
Current finance lease receivables	n. a.	8.5	–	8.5	–	–
Other assets, prepaid expenses and deferred charges		87.1	55.0	–	32.1	32.1
(of that derivatives without a hedging relationship)	FAHFT	(4.6)	(–)	(–)	(4.6)	(4.6)
(of that other from the category LaR)	LaR	(18.3)	(–)	(–)	(18.3)	(18.3)
(of that other from the category HtM)	HtM	(9.2)	(–)	(–)	(9.2)	(9.2)
(of that other)	n. a.	(55.0)	(55.0)	(–)	(–)	(–)
Cash and cash equivalents	LaR	496.2	–	–	496.2	496.2
Total financial instruments (assets)					1,195.5	1,195.5

Liabilities

in € millions	IAS 39 measurement category	Net carrying amount/ status as of Dec. 31, 2015	of that: other assets and liabilities not covered by IFRS 7	of that: other assets and liabilities covered by IAS 17	Net carrying amount of financial instruments/ status as of Dec. 31, 2015	Fair value/ status as of Dec. 31, 2015
Non-current financial liabilities	FLAC	294.2	–	–	294.2	351.4
Other non-current liabilities		24.0	23.8	0.2	–	–
(of that for leases)	n. a.	(0.2)	(–)	(0.2)	(–)	(–)
(of that other)	n. a.	(23.8)	(23.8)	(–)	(–)	(–)
Current financial liabilities	FLAC	2.1	–	–	2.1	2.1
Trade payables	FLAC	402.0	–	–	402.0	402.0
Liabilities from construction contracts	n. a.	217.0	217.0	–	–	–
Accounts payable to affiliated companies	FLAC	0.0	–	–	0.0	0.0
Other current liabilities, prepaid expenses and deferred charges		290.6	157.5	0.1	133.0	133.0
(of that for leases)	n. a.	(0.1)	(–)	(0.1)	(–)	(–)
(of that derivatives without a hedging relationship)	FLHFT	(3.8)	(–)	(–)	(3.8)	(3.8)
(of that other from the category FLAC)	FLAC	(129.2)	(–)	(–)	(129.2)	(129.2)
(of that other)	n. a.	(157.5)	(157.5)	(–)	(–)	(–)
Total financial instruments (liabilities)					831.3	888.5

With the exception of financial investments and leasing claims, most assets have short terms to maturity. Their carrying amounts as of the financial reporting date therefore correspond approximately to the fair value. Long-term interest-bearing receivables including finance lease receivables are measured and, if necessary, impaired based on different parameters such as interest rates and customer-specific credit ratings. Thus, these carrying amounts also largely reflect the market values.

Liabilities – with the exception of long-term financial liabilities and the other non-current liabilities – have regular, short terms to maturity. The values shown on the balance sheet approximately represent the fair values. The market value of the convertible bond is based on the market prices quoted at the balance sheet date.

The derivative financial instruments recognized at the balance sheet date have to do with forward exchange transactions to hedge exchange exposure. Recognition in the balance sheet occurs at the market value determined using standardized financial mathematical methods, among other things, in relation to the foreign exchange rates.

Net results listed according to measurement categories are represented as follows:

Net profit/loss by IAS 39 measurement categories for 2016

in € millions	Net gains/ losses	Total interest income/ expenses	Commission income/ expenses
Loans and Receivables (LaR)	-0.3	0.2	–
Available-for-Sale Financial Assets (AFS)	-0.1	–	–
Held-to-Maturity (HtM)	0.0	0.0	–
Financial Instruments Held for Trading (FAHFT und FLHFT)	-1.5	–	–
Financial Liabilities Measured at Amortised Cost (FLAC)	12.0	-3.0	-1.0
Total	10.1	-2.8	-1.0

Net profit/loss by IAS 39 measurement categories for 2015

in € millions	Net gains/ losses	Total interest income/ expenses	Commission income/ expenses
Loans and Receivables (LaR)	-4.1	2.3	0.0
Available-for-Sale Financial Assets (AFS)	12.4	–	–
Held-to-Maturity (HtM)	–	0.1	–
Financial Instruments Held for Trading (FAHFT und FLHFT)	-6.3	–	–
Financial Liabilities Measured at Amortised Cost (FLAC)	9.7	-9.0	-0.7
Total	11.7	-6.6	-0.7

As in the previous year, net losses from the category Loans and Receivables also include exchange rate effects as well as results from additions and reversals of provisions for receivables and other assets. In addition to foreign currency effects, the net profits from Financial Liabilities Measured at Amortized Cost also include income from writing off liabilities.

Interest income for financial instruments from the category Loans and Receivables comes from the investment of cash and cash equivalents. The interest result from financial liabilities from the category Financial Liabilities Measured at Amortized Cost largely reflects interest expenses from the promissory note loan, the current interest expenses from the convertible bond as well as from financial liabilities due to banks. In addition, the interest income and interest expense also incorporate foreign currency gains and losses from financial assets and liabilities.

Commission expenses are recorded as the transaction costs for financial liabilities due to banks and fees for the provision of guarantees.

30. Contingent liabilities and other financial commitments

The following contingent liabilities and other financial commitments existed as of the balance sheet date:

in € millions	2015	2016
Liabilities from guarantees	4.5	4.9
Liabilities from warranty agreements	0.2	0.2
Total	4.7	5.1

in € millions	2015	2016
Purchase commitments (discounted notes)	4.3	2.0
Rent/lease liabilities	124.6	136.2
Other financial commitments	7.4	5.9
Total	136.3	144.1

The rise in rental and leasing commitments is largely the result of new or extended tenancies and foreign currency effects.

Commitments in connection with leases for passenger cars, office and factory buildings, technical office equipment and production facilities primarily include liabilities from leases and rental agreements in connection with operating leases. The lease payments and due dates are broken down as follows:

in € millions	2015	2016
Due within one year	28.8	32.9
Due between one and five years	67.6	79.6
Due after more than five years	28.3	23.7
Total	124.7	136.2

Total rental expenses for the fiscal year were €41.2 million compared to €39.2 million in 2015; rental income totaled €0.0 million compared to €0.2 million in 2015.

Notes to the Group cash flow statement

The cash flow statement reports cash flows separately for incoming and outgoing funds from operating, investing and financing activities in accordance with IAS 7. The calculation of cash flows is derived from the consolidated financial statements of KUKA Aktiengesellschaft by using the indirect method.

Cash and cash equivalents in the cash flow statement comprise all cash and cash equivalents disclosed on the balance sheet, i.e. cash on hand, checks and cash with banks provided they are available within three months.

Cash and cash equivalents of €1.1 million (2015: €3.2 million) are subject to restrictions. In the previous year, these were still related to company acquisitions made in the preceding years and to a government-funded contract in Brazil. There was still a restriction on the government-funded contract in Brazil and a restriction on government funding for eligible development projects with a German company in 2016.

Cash flow from operating activities is derived indirectly from the earnings after taxes.

Under the indirect method, the relevant changes to the balance sheet items associated with operating activities are adjusted for currency translation effects and changes to the scope of consolidation.

Notes to the Group segment reporting

The data for the individual annual financial statements have been segmented by business field and region. The structure follows internal reporting (management approach). The segmentation is intended to create transparency with regard to the earning power and the prospects, as well as the risks and rewards for the various business fields within the Group.

Segment reporting is designed to accommodate the structure of KUKA Group. KUKA Group was engaged in three major business segments in the reporting year and the previous year.

KUKA Robotics

This segment offers customers from the automotive sector and general industry – as well as those supported by comprehensive customer services – industrial robots, from small models to heavy-duty robots. Medical robotics activities are also bundled in this segment.

KUKA Systems

This segment provides customers in the fields of automotive and general industry with innovative solutions and services for automated production. Applications range from welding, bonding, sealing, assembling and testing, to forming solutions tailored to meet the specific customer needs and production of castings and plastic components.

Swisslog

This segment produces leading automation solutions for future-oriented hospitals, warehouse and distribution centers with the focus on the segments of trading, including e-commerce, pharmaceuticals, and chilled and frozen foods.

KUKA Aktiengesellschaft and other companies

KUKA Aktiengesellschaft and other investments that are supplementary to the operating activities of KUKA Group are aggregated in a separate segment. Cross-divisional consolidation items are shown in a separate column. The allocation of Group companies to the individual business segments is shown in the schedule of shareholdings.

The breakdown of sales revenues by region is based on the customer's registered office/delivery location. Non-current assets (tangible and intangible assets) are calculated by company location.

in € millions	Revenues acc. to customer location		Non-current assets acc. to registered office of the company	
	2015	2016	2015	2016
Germany	618.2	632.7	210.8	233.5
Other Europe	738.4	659.6	336.3	335.8
North America	1,035.7	1,060.8	108.3	109.3
Other regions	573.6	595.8	26.6	27.7
Total	2,965.9	2,948.9	682.0	706.3

KUKA Group did not achieve more than 10% of total sales revenues with any customer in the 2016 fiscal year or in the previous year.

The calculations for segment reporting rely on the following principles:

- › Group external sales revenues show the divisions' respective percentage of consolidated sales for the Group as presented in the Group income statement.
- › Intra-Group sales revenues are sales transacted between segments. In principle, transfer prices for intra-Group sales are determined based on the market.
- › Sales revenues for the segments include revenues from sales to third parties as well as sales to other Group segments.
- › EBIT reflects operating earnings, i.e. the earnings from ordinary activities before financial results and taxes.
- › Elimination of scheduled and unscheduled depreciation on tangible and intangible assets from EBIT produces EBITDA.
- › ROCE (return on capital employed) is the ratio of EBIT to average capital employed, which is largely non-interest bearing. To calculate ROCE the capital employed is based on an average value.

The reconciliation of capital employed to segment assets and segment liabilities is shown in the following table:

in € millions	2015	2016
Capital employed		
Intangible assets	423.0	445.1
+ Tangible assets	259.0	261.2
+ Non-current lease receivables	65.2	57.7
+ Assets Held-for-Sale	-	-
+ Asset-side working capital	1,077.0	1,357.8
Inventories	297.8	318.8
Receivables from construction contracts	347.7	535.7
IC trade receivables	-	-
Trade receivables	310.6	353.2
Other receivables and assets	120.9	150.1
= Asset items of capital employed	1,824.2	2,121.8
./. Other provisions	143.0	157.9
./. Liabilities from construction contracts	217.0	223.7
./. Advances received	72.5	95.6
./. Trade payables	402.0	459.3
./. IC trade payables	-	-
./. Other liabilities except for liabilities similar to bonds (incl. deferred income)	306.1	302.9
= Liability-side working capital	1,140.6	1,239.4
./. Liabilities Held-for-Sale	-	-
= Liability items of capital employed	1,140.6	1,239.4
= Capital employed	683.6	882.4
Average capital employed	676.8	783.0
Segment assets		
Asset items of capital employed	1,824.2	2,121.7
+ Other participants	3.9	4.9
+ At equity participations	6.6	4.2
= Segment assets	1,834.7	2,130.8
Segment liabilities		
Liability items of capital employed	1,140.6	1,239.3
+ Pension provisions and similar obligations	114.0	122.7
= Segment liabilities	1,254.6	1,362.0
Working capital		
Asset-side working capital	1,077.0	1,357.8
Liability-side working capital	1,140.6	1,239.4
= Working capital	-63.6	118.4

Additional elements of the segment reports are contained in the management report on the operating business divisions Robotics, Systems and Swisslog, as well as in the tables at the beginning of the Group notes.

Other notes

Related party disclosures

Persons or companies that may be influenced by or have influence on the reporting company must be disclosed in accordance with IAS 24, provided they have not already been included as consolidated companies in the financial statements.

Parties related to KUKA Group include mainly members of the Executive and Supervisory Boards as well as non-consolidated KUKA Group companies in which KUKA Aktiengesellschaft directly or indirectly holds a significant proportion of the voting rights or companies that hold a significant proportion of the voting rights in KUKA Aktiengesellschaft.

The scope of related companies and persons has remained virtually unchanged since December 31, 2015. This includes the associates, Freadix FryTec GmbH, Augsburg, IWK Unterst tzungseinrichtung GmbH, Karlsruhe, KUKA Unterst tzungskasse GmbH, Augsburg as non-consolidated subsidiaries and the newly founded joint venture Chang'an Reis Robotic Intelligent Equipment (Chongqing) Co., Ltd, Chongqing/China. The companies of Voith Group and Loh Group are also included in this category until the respective equity stakes are transferred.

The contractually agreed, future capital contributions to KBee AG are to be made depending on the achievement of certain milestones and amount to a further €1.3 million. There are currently significant differences in opinion between the parties regarding the interpretation of certain components of the contract in respect of the stage of development and series maturity of the robot developed by KBee AG and the arrangements for further collaboration, including the associated company and licensing agreements.

Including option-bearing financial instruments, Voith Group has a holding of 25.10% in KUKA Aktiengesellschaft, but has tendered its entire equity stake in connection with the takeover bid by Midea.

The following receivables from and liabilities to related parties existed as at the balance sheet date:

in € millions	Shares in %	Group receivables from related parties		Group liabilities to related parties	
		Dec. 31, 2015	Dec. 31, 2016	Dec. 31, 2015	Dec. 31, 2016
Voith Group	25.1	0.1	0.6	0.8	0.1
KBee AG, Munich	45.0	0.0	0.2	–	–
Yawei Reis Robot Manufacturing (Jiangsu) Co. Ltd., Yangzhon City/China	49.0	0.0	0.3	1.1	1.3
Others/less than €1 million		–	0.4	0.1	0.4
Total		0.1	1.5	2.0	1.8

Over the reporting year, the following services were provided to or purchased from related parties:

in € millions	Shares in %	Goods and services provided by the Group to related parties		Goods and services provided to the Group by related parties	
		2015	2016	2015	2016
Voith Group	25.1	0.3	4.7	0.3	0.8
KBee AG, Munich	45.0	0.0	0.1	–	–
RoboCeption GmbH, Munich	25.1	0.0	0.0	0.0	2.0
Yawei Reis Robot Manufacturing (Jiangsu) Co. Ltd., Yangzhon City/China	49.0	0.4	1.5	0.5	4.0
Others		0.1	2.1	0.8	1.6
Total		0.8	8.4	1.6	8.4

Business with all related parties is transacted under the “dealing at arm’s length” principle at transfer prices that correspond to market conditions. No business subject to reporting rules was conducted between any KUKA Group companies and members of KUKA Aktiengesellschaft’s Executive or Supervisory Boards with the exception of the legal transactions outlined in the compensation report.

Executive Board and Supervisory Board compensation

The Executive Board of KUKA Aktiengesellschaft received total compensation of €5.5 million (2015: €7.9 million). Altogether over the fiscal year, the Executive Board received a fixed salary including payments in kind and other compensation of €1.2 million (2015: €1.2 million). Target achievement and performance-based compensation totaled €4.3 million (2015: €6.7 million). This included €2.2 million (2015: €4.6 million) paid out for compensation in accordance with the phantom share program.

With a few exceptions, former Executive Board members have been granted benefits from the company pension scheme, which include old-age, vocational and employment disability, widow’s and orphan’s pensions. The amount of accruals included for this group of persons in 2016 for current pensions and vested pension benefits totals €10.0 million (HGB) (2015: €10.0 million). The retirement benefits paid in this connection amounted to €0.8 million (2015: €0.8 million).

KUKA Aktiengesellschaft has no compensation agreements with the members of the Executive Board or with employees that would come into effect in the event of a takeover bid.

In the 2016 fiscal year, the members of the Supervisory Board received a total of €1.0 million (2015: €0.8 million) for their activities as members of this board.

Please refer to the notes in the audited compensation report for further information and details about the compensation of individual Executive Board and Supervisory Board members. The compensation report is part of the corporate governance report and summarizes the basic principles used to establish the compensation of the Executive and Supervisory Boards of KUKA Aktiengesellschaft. The compensation report is an integral part of the Group management report.

Audit fees

The fee for the auditor, KPMG AG, Wirtschaftsprüfungsgesellschaft, Munich, recognized as an expense in 2016 totals €1.1 million (2015: €1.6 million) for services provided in Germany. Of this, €0.6 million was attributable to financial statement auditing services (2015: €0.8 million), €0.4 million to tax advisory services (2015: €0.8 million) and €0.1 million to other services, as in the previous year.

€1.1 million (2015: €1.1 million) was recognized as an expense for financial statement auditing services performed for foreign subsidiaries, and €0.2 million for tax advisory services abroad.

MECCA/Midea takeover bid for KUKA

On June 16, 2016, MECCA International (BVI) Limited, a wholly-owned subsidiary of Midea Group Co. Ltd. (Midea) published the bid document for the public tender offer for KUKA Aktiengesellschaft (KUKA). The takeover bid was made in the form of a cash offer of €115.0 per KUKA share and was addressed to all KUKA shareholders.

At the end of June, based on the fairness opinion, the Executive Board recommended that KUKA shareholders accept the offer. KUKA shareholders were able to offer their shares to Midea up to August 3, 2016 during a grace period (due to the 30% minimum acceptance threshold being exceeded).

After the grace period expired, the stake held by MECCA in KUKA amounted to 94.55% taking into account the tendered shares.

Completion of the takeover was subsequently dependent on antitrust and regulatory authorizations in the various countries in which KUKA operates. Following the sale of the Aerospace operating division in mid-December 2016, the final outstanding condition was met in order to fulfill the security-related requirements of the US authorities CFIUS (Committee on Foreign Investment in the United States) and DDTC (Directorate of Defense Trade Controls). The takeover of KUKA Aktiengesellschaft by MECCA International (BVI) Limited was approved by the aforementioned US authorities on December 29, 2016.

All the closing conditions of the takeover bid of June 16, 2016 have therefore been met.

For further details please refer to the “KUKA and the capital market” section.

Events after the balance sheet date

As described in the previous section, all closing conditions were met for the takeover bid of June 16, 2016 by the end of 2016. Accordingly the final settlement of the takeover bid took place on January 6, 2017.

For further details please refer to the section “KUKA and the capital market”.

Bernd Minning resigned as a member of the Supervisory Board and thus also as its chairman with effect from February 1, 2017. Dr. Hubert Lienhard (as of January 10, 2017), Dr. Friedhelm Loh (as of January 27, 2017) and Prof. Dr. Dirk Abel (as of January 31, 2017) had previously also resigned from their positions on the Supervisory Board. The role of Supervisory Board chairman was assumed by Dr. Yanmin Gu (Andy Gu) with effect from February 10, 2017 following his court appointment to the board. Min Liu (Francoise Liu) (as of February 10, 2017), Prof. Dr. Michèle Morner (as of February 10, 2017), Paul Fang (as of February 24, 2017) and Alexander Liong Hauw Tan (as of February 24, 2017) had previously been appointed as members of the Supervisory Board. The appointments are limited until the upcoming Annual General Meeting on May 31, 2017. These changes are taking place in connection with the takeover by Midea. The company wishes to be appropriately represented on the Supervisory Board.

The banks involved in the syndicated loan agreement (see note 26) agreed to the extension at the beginning of 2017. The new maturity date is March 30, 2022.

Apart from this there have been no events subject to reporting requirements that had an impact on the financial position and performance of the company since the balance sheet reporting date.

Augsburg, February 28, 2017

KUKA Aktiengesellschaft
The Executive Board

Dr. Till Reuter

Peter Mohnen

Corporate bodies

Supervisory board

Bernd Minning (until February 1, 2017)

Kaisheim

Chairman of the Supervisory Board of KUKA Aktiengesellschaft

- › President and CEO of WM Technologies GmbH, Kaisheim
- › WM Technologies (Shanghai) Ltd., Shanghai/China²
- › KARL WÖRWAG Lack- und Farbenfabrik GmbH & Co. KG, Stuttgart²

Dr. Yanmin (Andy) Gu (from February 10, 2017)

Panyu, Guangzhou/China

Chairman of the Supervisory Board of KUKA Aktiengesellschaft

- › Vice President Midea Group Co., Ltd., Foshan/China

Michael Leppek³

Stadtbergen

Deputy Chairman of the Supervisory Board

- › 1st Authorized Representative of IG Metall trade union, Augsburg branch
- › MAN Diesel & Turbo SE¹
- › SGL Carbon SE¹
- › AIRBUS Helicopters Deutschland GmbH¹

Prof. Dr. Dirk Abel (until January 31, 2017)

Aachen

- › University Professor
- › Director of the Institute of Automatic Control at RWTH Aachen
- › ATC GmbH (Aldenhoven Testing Center of RWTH Aachen University), Aachen²

Wilfried Eberhardt³

Aichach

- › Chief Marketing Officer of KUKA Aktiengesellschaft, Augsburg

Paul Fang (from February 24, 2017)

Foshan/China

- › Chairman/CEO Midea Group Co., Ltd., Foshan/China

Siegfried Greulich³

Augsburg

- › Deputy Chairman of the Works Council of the KUKA Plants at Augsburg

Thomas Knabel³ (until May 27, 2016)

Zwickau

- › 2nd Authorized Representative of IG Metall trade union, Zwickau branch

Armin Kolb³

Augsburg

- › Chairman of the Works Council of the KUKA Plants at Augsburg

Dr. Constanze Kurz³ (from June 1, 2016)

Frankfurt am Main

- › Spokesperson for the General and Group Works Council of Robert Bosch GmbH (since December 1, 2016)
- › SMS GmbH and SMS group GmbH, Hilchenbach¹
- › DMG MORI AG, Bielefeld¹
- › Union Secretary to the Executive Committee of the IG Metall trade union (until November 30, 2016)
- › SMS GmbH, Hilchenbach¹
- › DMG MORI AG, Bielefeld¹

Carola Leitmeir³

Großaitingen

- › Member of the Works Council of the KUKA Plants at Augsburg

Francoise Liu (from February 10, 2017)

DeLiang, Shunde/China

- › Chief Operations Officer Midea Group Co., Ltd., Foshan/China

Dr. Hubert Lienhard (until January 10, 2017)

Heidenheim

- › CEO of Voith GmbH
- › EnBW¹
- › Heraeus Holding GmbH¹
- › SGL Carbon SE¹
- › SMS Holding GmbH¹
- › Voith Turbo Beteiligungen GmbH (Chairman)¹
- › Voith Hydro Holding GmbH & Co. KG (Chairman)²
- › Voith Industrial Services Holding GmbH & Co. KG (Chairman)² (until January 29, 2016)
- › Voith Turbo GmbH & Co. KG (Chairman)²

Dr. Friedhelm Loh (until January 27, 2017)

Dietzhölzthal

- › Owner and CEO of the Friedhelm Loh Group, Haiger
- › Senator of Fraunhofer Gesellschaft
- › Deutsche Messe AG¹
- › Klöckner & Co. SE¹
- › Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., Senator²
- › Group mandates of Friedhelm Loh Group:
Cito Benelux B.V., Zevenaar/Netherlands, member of Supervisory Board
Cito Benelux (Onroerend Goed) B.V., Zevenaar/Netherlands, member of Supervisory Board
Rittal Corporation, Urbana (OH)/USA, Chairman of the Board
Rittal Electrical Equipment (Shanghai) Co. Ltd., Shanghai/China, Legal Representative and Chairman of the Board
Rittal Electro-Mechanical Technology (Shanghai) Co. Ltd., Shanghai/China, Legal Representative and Chairman of the Board

Prof. Dr. Uwe Loos

Stuttgart

- › Dorma Holding GmbH +Co.KGaA, Ennepetal¹
- › Bharat Forge Aluminiumtechnik, Brand-Erbisdorf²
- › CDP Bharat Forge GmbH, Ennepetal²
- › Richard Fritz Holding GmbH, Besigheim²

Prof. Dr. Michèle Morner (from February 10, 2017)

Rosengarten

- › Incumbent of the Chair of Public Management and Leadership at the German University of Administrative Sciences in Speyer

Hans Ziegler (until December 1, 2016)

Feusisberg/Switzerland

- › Member of various administrative boards
- › OC Oerlikon Corporation AG, Pfäffikon SZ/Switzerland²
- › Schmolz + Bickenbach Holding AG, Emmenbrücke/Switzerland²
- › Credor Holding AG, Will SG/Switzerland²
- › think & act AG, Feusisberg SZ/Switzerland²

Alexander Liong Hauw Tan (from February 24, 2017)

Guangzhou/China

- › Deputy CFO Midea Group Co., Ltd., Foshan/China

Executive Board

Dr. Till Reuter

Pfäffikon/Switzerland
Chief Executive Officer

- › Dr. Steiner Holding AG¹
- › Rinvest AG, Pfäffikon/Switzerland²
- › Swisslog Holding, Buchs/Switzerland²

Peter Mohnen

Munich
Chief Financial Officer

¹ Membership in other legally stipulated supervisory boards

² Membership in comparable German and foreign controlling bodies of commercial enterprises

³ Employee Representative on Supervisory Board

Schedule of shareholdings of KUKA Aktiengesellschaft

As at December 31, 2016

Name and registered office of the company		Currency	Share of equity in %	Method of consolidation
Germany				
1	Bopp & Reuther Anlagen-Verwaltungsgesellschaft mbH, Augsburg	EUR	100.00	k
2	connyun GmbH, Augsburg	EUR	100.00	k
3	Faude Automatisierungstechnik GmbH, Gärtringen	EUR	100.00	k
4	KUKA Industries GmbH & Co. KG, Obernburg ¹	EUR	100.00	k
5	KUKA Industries GmbH, Augsburg ¹	EUR	100.00	k
6	KUKA Roboter GmbH, Augsburg ¹	EUR	100.00	k
7	KUKA Systems GmbH, Augsburg ¹	EUR	100.00	k
8	Reis Asia Pacific GmbH, Obernburg	EUR	100.00	k
9	Reis GmbH, Obernburg	EUR	100.00	k
10	Reis Group Holding GmbH & Co. KG, Obernburg ¹	EUR	100.00	k
11	Reis Holding GmbH, Obernburg	EUR	100.00	k
12	Swisslog (Deutschland) GmbH, Puchheim	EUR	100.00	k
13	Swisslog Augsburg GmbH, Augsburg	EUR	100.00	k
14	Swisslog Automation GmbH, Ettlingen	EUR	100.00	k
15	Swisslog GmbH, Dortmund	EUR	100.00	k
16	Swisslog Healthcare GmbH, Westerstede	EUR	100.00	k
17	Verwaltungsgesellschaft Walter Reis GmbH, Obernburg	EUR	100.00	k
18	Walter Reis GmbH & Co KG, Obernburg ¹	EUR	100.00	k
19	WR Vermögensverwaltungs GmbH, Obernburg	EUR	100.00	k
20	KBee AG, Munich	EUR	40.00	at
21	RoboCeption GmbH, Munich	EUR	25.10	b
22	Freadix FryTec GmbH, Augsburg	EUR	100.00	nk
23	IWK Unterstützungseinrichtung GmbH, Karlsruhe	EUR	100.00	nk
24	KUKA Unterstützungskasse GmbH, Augsburg	EUR	100.00	nk
25	Schmidt Maschinenteknik GmbH i.L., Niederstotzingen	EUR	100.00	nk
Other Europe				
26	KUKA Automatisering + Robots N.V., Houthalen/Belgium	EUR	100.00	k
27	KUKA Automatisme + Robotique S.A.S., Villebon-sur-Yvette/France	EUR	100.00	k
28	KUKA Industries ČR spol. s r.o., Chomutov/Czech Republic	CZK	100.00	k
29	KUKA Nordic AB, Västra Frölunda/Sweden	SEK	100.00	k
30	KUKA Roboter CEE GmbH, Linz/Austria	EUR	100.00	k
31	KUKA Roboter Italia S.p.A., Rivoli/Italy	EUR	100.00	k
32	KUKA Roboter Schweiz AG, Neuenhof/Switzerland	CHF	100.00	k
33	KUKA Robotics Hungária Ipari Kft., Taksony/Hungary	EUR	100.00	k
34	KUKA Robotics Ireland LTD, Dublin/Ireland	EUR	100.00	k
35	KUKA Robotics OOO, Moscow/Russia	RUB	100.00	k
36	KUKA Robotics UK LTD, Wednesbury/United Kingdom	GBP	100.00	k
37	KUKA Robots IBÉRICA S.A., Vilanova i la Geltrú/Spain	EUR	100.00	k
38	KUKA S-BASE s.r.o. (in Liquidation), Roznov p.R./Czech Republic	CZK	100.00	k
39	KUKA Sistemy OOO, Togliatti/Russia	RUB	100.00	k
40	KUKA Systems Aerospace SAS, Bordeaux-Merignac/France	EUR	100.00	k

Name and registered office of the company		Currency	Share of equity in %	Method of consolidation
41	KUKA Systems France S.A., Montigny/France	EUR	100.00	k
42	KUKA Systems Slowakei, spol. S r.o., Dubnica nad Váhom/Slovakia	EUR	100.00	k
43	KUKA Systems SRL, Sibiu/Romania	RON	100.00	k
44	KUKA Systems UK Ltd., Halesowen/United Kingdom	GBP	100.00	k
45	Reis Espana S.L., Esplugues de Llobregat (Barcelona)/Spain	EUR	100.00	k
46	Reis France SCI, Pontault Combault/France	EUR	100.00	k
47	Reis Robotics Italia srl, Bellusco/Italy	EUR	100.00	k
48	Swisslog (UK) Ltd., Redditch/United Kingdom	GBP	100.00	k
49	Swisslog AB, Partille/Sweden	SEK	100.00	k
50	Swisslog Accalon AB, Boxholm/Sweden	SEK	100.00	k
51	Swisslog AG, Buchs/Switzerland	CHF	100.00	k
52	Swisslog AS, Oslo/Norway	NOK	100.00	k
53	Swisslog B.V., Culemborg/Netherlands	EUR	100.00	k
54	Swisslog Ergotrans B.V., Apeldoorn/Netherlands	EUR	100.00	k
55	Swisslog Evomatic GmbH, Sipbachzell/Austria	EUR	100.00	k
56	Swisslog France SAS, Saint-Denis/France	EUR	100.00	k
57	Swisslog Holding AG, Buchs/Switzerland	CHF	100.00	k
58	Swisslog Italia SpA, Mailand/Italy	EUR	100.00	k
59	Swisslog Luxembourg S.A., Ell/Luxembourg	EUR	100.00	k
60	Swisslog N.V., Wilrijk/Belgium	EUR	100.00	k
61	Tecnilab S.p.A., Cuneo/Italy	EUR	100.00	k
62	Metaalwarenfabriek 's-Hertogenbosch B.V., s-Hertogenbosch/Netherlands	EUR	100.00	nk
North America				
63	KUKA Aerospace Holdings LLC, Michigan/USA	USD	100.00	k
64	KUKA Assembly and Test Corp., Saginaw, Michigan/USA	USD	100.00	k
65	KUKA de Mexico S. de R.L. de C.V., Mexico City/Mexico	MXN	100.00	k
66	KUKA Recursos S. de R.L. de C.V., Mexico City/Mexico	MXN	100.00	k
67	KUKA Robotics Canada Ltd., Saint John NB/Canada	CAD	100.00	k
68	KUKA Robotics Corp., Sterling Heights, Michigan/USA	USD	100.00	k
69	KUKA Systems de Mexico S. de R.L. de C.V., Mexico City/Mexico	MXN	100.00	k
70	KUKA Systems North America LLC., Sterling Heights, Michigan/USA	USD	100.00	k
71	KUKA Toledo Production Operations, LLC., Toledo, Ohio/USA ²	USD	100.00	k
72	KUKA U.S. Holdings Company LLC., Shelby Township, Michigan/USA	USD	100.00	k
73	Reis Robotics USA Inc., Elgin/Illinois/USA	USD	100.00	k
74	Swisslog Logistics, Inc., Newport News/USA	USD	100.00	k
75	Swisslog USA Inc., City of Dover/USA	USD	100.00	k
76	Translogic Corp., Denver/USA	USD	100.00	k
77	Translogic Ltd. (Canada), Mississauga/Canada	CAD	100.00	k
Latin America				
78	KUKA Industries Brasil Sistemas de Automocão Ltda., São Paulo/Brazil	BRL	100.00	k
79	KUKA Roboter do Brasil Ltda., São Paulo/Brazil	BRL	100.00	k
80	KUKA Systems do Brasil Ltda., São Bernardo do Campo SP/Brazil	BRL	100.00	k
81	Reis Robotics do Brasil Ltda., São Paulo/Brazil	BRL	100.00	k

Name and registered office of the company		Currency	Share of equity in %	Method of consolidation
Asia/Australia				
82	KUKA Industries Automation (China) Co., Ltd., Kunshan/China	CNY	100.00	k
83	KUKA Industries Singapore PTE. Ltd., Singapur/Singapore	SGD	100.00	k
84	KUKA Management (Shanghai) Co. Ltd., Shanghai/China	CNY	100.00	k
85	KUKA Robot Automation Malaysia Sdn Bhd, Kuala Lumpur/Malaysia	MYR	100.00	k
86	KUKA Robot Automation Taiwan Co. Ltd., Chung-Li City/Taiwan	TWD	99.90	k
87	KUKA Robotics (China) Co. Ltd., Shanghai/China	CNY	100.00	k
88	KUKA Robotics (India) Pvt. Ltd., Haryana/India	INR	100.00	k
89	KUKA Robotics (Thailand) Co., Ltd., Bangkok/Thailand	THB	100.00	k
90	KUKA Robotics Australia Pty. Ltd., Victoria/Australia	AUD	100.00	k
91	KUKA Robotics Japan K.K., Tokyo/Japan	JPY	100.00	k
92	KUKA Robotics Korea Co. Ltd., Kyunggi-Do/South Korea	KRW	100.00	k
93	KUKA Robotics Manufacturing China Co. Ltd., Shanghai City/China	CNY	100.00	k
94	KUKA Systems (China) Co. Ltd., Shanghai/China	CNY	100.00	k
95	KUKA Systems (India) Pvt. Ltd., Pune/India	INR	100.00	k
96	Reis Robotics China Co. Ltd. (Shanghai), Shanghai/China	CNY	100.00	k
97	Swisslog (Kunshan) Co. Ltd., Kunshan/China	CNY	100.00	k
98	Swisslog Asia Ltd., Hongkong/China	HKD	100.00	k
99	Swisslog Australia Pty Ltd., Sydney/Australia	AUD	100.00	k
100	Swisslog Healthcare Trading MEA LLC., Emirate of Dubai/United Arab Emirates	AED	49.00	k
101	Swisslog Korea Co. Ltd, Bucheon si, Kyeonggi-do/South Korea	KRW	100.00	k
102	Swisslog Malaysia Sdn Bhd, Selangor Darul Ehsan/Malaysia	MYR	100.00	k
103	Swisslog Middle East LLC., Dubai/United Arab Emirates	AED	49.00	k
104	Swisslog Pte Ltd Singapur, Singapore/Singapore	SGD	100.00	k
105	Swisslog Shanghai Co. Ltd., Shanghai/China	CNY	100.00	k
106	Swisslog Singapore Pte Ltd., Singapore/Singapore	SGD	100.00	k
107	Yawei Reis Robot Manufacturing (Jiangsu) Co. Ltd., Yangzhou City/China	CNY	49.00	at
108	Chang'an Reis (Chongqing) Robotic Intelligent Equipment Co. Ltd, Chongqing/China	CNY	50.00	at

¹ Companies that have made use of the exemption pursuant to section 264 para. 3 or section 264 b of the German Commercial Code

² Principal place of business

Method of consolidation as of December 31, 2016

k Fully consolidated companies

nk Non-consolidated companies

at Financial asset accounted for by the equity method

b Participating interest

Responsibility statement

“To the best of our knowledge, and in accordance with the applicable reporting principles, the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and profit or loss of the Group, and the management report of the Group includes a fair review of the development and performance of the business and the position of the Group, together with a description of the principal opportunities and risks associated with the expected development of the Group.”

Augsburg, February 28, 2017

KUKA Aktiengesellschaft
The Executive Board

Dr. Till Reuter

Peter Mohnen

Audit opinion

We have audited the consolidated financial statements prepared by KUKA Aktiengesellschaft, Augsburg, comprising the income statement, statement of comprehensive income, cash flow statement, balance sheet, statement of changes in equity, and the notes to the consolidated financial statements, together with the Group management report for the business year from January 1 to December 31, 2016. The preparation of the consolidated financial statements and the Group management report in accordance with IFRS as adopted by the EU and the additional requirements of German commercial law pursuant to section 315 a para. 1 HGB are the responsibility of the parent company's Executive Board. Our responsibility is to express an opinion on the consolidated financial statements and on the Group management report based on our audit.

We conducted our audit of the financial statements in accordance with section 317 HGB and generally accepted standards in Germany for the audit of financial statements set out by the Institute of Public Auditors in Germany (IDW).

Those standards require that we plan and perform the audit such that misstatements materially affecting the presentation of the net assets, financial position and results of operations in the consolidated financial statements in accordance with the applicable financial reporting framework and in the Group management report are detected with reasonable assurance. Knowledge of the business activities and the economic and legal environment of the Group and expectations as to possible misstatements are taken into account in the determination of audit procedures. The effectiveness of the accounting-related internal control system and the evidence supporting the disclosures in the consolidated financial statements and the Group management report are examined primarily on a test basis within the framework of the audit. The audit includes assessing the annual financial statements of those entities included in consolidation, the determination of entities to be included in consolidation, the accounting and consolidation principles used and significant estimates made by the company's Executive Board, as well as evaluating the overall presentation of the consolidated financial statements and the Group management report. We believe that our audit provides a reasonable basis for our opinion.

Our audit has not led to any reservations.

In our opinion, based on the findings of our audit, the consolidated financial statements comply with IFRS as adopted by the EU, the additional requirements of German commercial law pursuant to section 315 a para. 1 HGB and give a true and fair view of the net assets, financial position and results of operations of the Group in accordance with these requirements. The Group management report is consistent with the consolidated financial statements, it complies with the legal requirements and as a whole provides a suitable view of the Group's position and suitably presents the opportunities and risks of future development.

Munich, February 28, 2017

KPMG AG
Wirtschaftsprüfungsgesellschaft

Karl Braun

Rainer Rupprecht

Glossary

ABS

Asset-backed securities. Asset-backed securities are bonds or notes that are collateralized with assets (usually receivables). Receivables of KUKA Roboter GmbH are purchased within the framework of an ABS program.

Capital employed

Capital employed includes working capital as well as intangible assets and tangible fixed assets. Capital employed therefore represents the difference between operating assets and non-interest-bearing outside capital.

Cash earnings

Cash earnings are a measurement for the inflow or outflow of cash from the operating profits (EBIT). They are the resulting balance from operating profits, interest, taxes, depreciation as well as other non-payment-related expenses and income.

Corporate compliance

Corporate compliance means that all employees conform to the company's legislative framework and internal guidelines and do not contravene any applicable laws. Proactive risk minimization is also part of a company's compliance management system.

Corporate governance

Common international term for responsible corporate management and control that aims at creating long-term value.

DAX

German stock index of blue chip companies. It includes the 30 largest German companies admitted to the Prime Standard in terms of market capitalization and volume of stocks traded.

Declaration of compliance

Declaration of the Executive Board and the Supervisory Board in accordance with section 161 of the German Corporation Act (AktG) regarding the implementation of the recommendations of the Government Commission in the German Corporate Governance Code.

Deferred taxes

Temporary differences between calculated taxes on the commercial and tax balance sheets designed to disclose the tax expense in line with the financial accounting income.

Derivatives

Financial instruments whose value is largely derived from a specified price and the price fluctuations/expectations of an underlying base value, e.g. exchange rates.

EBIT

Earnings before interest and taxes.

EBIT margin

EBIT in relation to sales revenues.

Employees

All figures for employees in the annual report are based on full time equivalent.

Equity ratio

Ratio of equity to total assets.

Earnings per share

Earnings per share are calculated on the basis of Group consolidated earnings after taxes and the average number of shares outstanding for the year.

Exposure

A key figure used to assess risk. This key figure includes all incoming payments in a 90-day period prior to the record date of the down payments, payments based on percentage of completion or compensation after acceptance of the work carried out. In addition, the key figure also comprises all customer payments made within 90 days and which have not yet been supplied with deliveries/services including the sum of unpaid invoices following delivery or service supplied to the customer, the POC receivables and any purchase commitments.

Free cash flow

Cash flow from operating activities plus cash flow from investing activities. Free cash flow shows the extent of the funds generated by the company in the business year.

Free float

Shares of a public company owned by diverse shareholders.

GCGC

German Corporate Governance Code: the German Government Commission's list of requirements for German companies (since 2002).

General industry

General industrial markets not including the automotive industry.

Gross margin

Gross margin is determined by dividing gross profit by sales, expressed as a percentage.

Gross profit

Gross profit on sales is defined as total sales minus cost of goods sold. Cost of goods sold includes all direct costs associated with sales revenues generated. Other costs, such as research and development, marketing and administration, are not included.

HGB

German Commercial Code.

IAS

International Accounting Standards.

IFRIC/SIC

International Financial Reporting Interpretation Committee – interpreter of the international financial reporting standards IAS and IFRS, formerly also SIC. IFRIC is the new name for the Standing Interpretations Committee adopted by the trustees of the IASC foundation in March 2002. SIC was created in 1997 to improve the application and worldwide comparability of financial reports prepared in accordance with International Accounting Standards (IAS). It outlines financial statement practices that may be subject to controversy.

IFRS

International Financial Reporting Standards: The IFRS ensure international comparability of consolidated financial statements and help guarantee a higher degree of transparency.

MAP

KUKA Aktiengesellschaft's employee share program.

Market capitalization

The market value of a company listed on the stock exchange. This is calculated by taking the share price and multiplying it by the number of shares outstanding.

MDAX

This stock index comprises the 50 largest German companies (after those of the DAX) according to market capitalization and volume of stocks traded.

Net liquidity/Net debt

Net liquidity/net debt is a financial control parameter consisting of cash, cash equivalents and securities minus current and non-current financial liabilities.

Percentage of completion method (POC)

Accounting method of sales and revenue recognition according to the stage of completion of an order. This method is used for customer-specific construction contracts.

R & D expenses

Expenditures related to research and development.

Rating

Assessment of a company's creditworthiness (solvency) determined by a rating agency based on analyses of the company. The individual rating agencies use different assessment levels.

Reis Group

Reis Group refers to Reis Group Holding GmbH & Co. KG and its subsidiaries.

ROCE

Return on capital employed (ROCE) is the ratio of the operating profit/loss (EBIT) to the capital employed (see Capital employed). To calculate ROCE the capital employed is based on an average value.

SDAX

This stock index comprises 50 smaller German companies that in terms of order book turnover and market capitalization rank directly below the MDAX shares.

Swisslog Group

Swisslog Group comprises Swisslog Holding AG and its subsidiaries.

Trade working capital

Trade working capital is defined as current assets minus current liabilities directly associated with everyday business operations; that is, inventories minus advance payments, trade receivables and receivables for manufacturing orders minus liabilities for trade receivables and manufacturing orders.

Volatility

Intensity of fluctuations in share prices and exchange rates or changes in prices for bulk goods compared to market developments.

Working capital

Working capital consists of the inventories, trade receivables, other receivables and assets, accrued items and the balance of receivables and payables from affiliated companies, as far as these are not allocated to financial transactions, minus other provisions, trade payables, other payables with the exception of liabilities similar to bonds and deferred income.

WPHG

German Securities Trading Act.

Financial calendar 2017

First quarter interim report	April 27, 2017
Annual General Meeting, Augsburg	May 31, 2017
Interim report to mid-year	August 2, 2017
Interim report for the first nine months	October 30, 2017

The annual report was published on March 22, 2017 and is available in German and English from KUKA Aktiengesellschaft Corporate Communications/Investor Relations department. In the event of doubt, the German version applies.

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