

KUKA



Smart & Responsible
Sustainability Report 2019

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About this report

With this Sustainability Report, KUKA AG is once again accounting for the company's economic, ecological, social and societal responsibility. Our target audience is comprised of our employees, customers and shareholders as well as analysts and investors, suppliers, non-governmental organizations, politicians and authorities as well as interested members of the public. We would like to inform the aforementioned parties about the measures we are taking to implement responsibility and corporate sustainability throughout our processes, products, the supply chain and towards our employees. This report has been prepared in accordance with the GRI Standards: Core

option. In preparation for this, we validated the key sustainability topics for KUKA in an updated materiality analysis. According to sections 289b et seq. in conjunction with sections 315b et seq. of the German Commercial Code [HGB], publicly traded companies in Germany are obliged to publish a non-financial statement or a separate, combined non-financial Group report. KUKA is complying with this obligation in the non-financial report within this document, which can be identified by the dark gray background of the pages, the additional labeling and the KUKA icon. The non-financial report was submitted to KUKA AG's Supervisory Board for examination and was

approved. The reporting period corresponds to the 2019 financial year (January 1 to December 31). The information relates to all affiliated companies of KUKA AG that are included in the KUKA Annual Report. Any deviations have been identified as such.

Editorial note

This report is available in German and English and was published on April 29, 2020. In the future it will also be published annually in April. Any references to employees, customers, etc. should be understood as referring to persons of all genders.

Foreword by the Executive Board

Dear Readers,

Sustainable business practices are much more than just a buzzword nowadays. The challenges facing the world are becoming increasingly complex. Climate change, finite resources, a diminishing sense of responsibility, cultural and social shifts, not to mention epidemics and uncertainties – these are all developments that require us to take on responsibility and demand a sustainable approach.

Now, we could say that all of this falls under the remit of the community of states, rather than that of the world of business. And that would not be entirely misguided. The fact of the matter is, however, that KUKA is one of a growing number of companies around the world that, as part of society, want to help to find solutions to pressing challenges. Sustainable working should therefore be more than just lip service for us. This includes our endeavors to reduce energy consumption in more and more areas, to achieve even greater efficiency in industrial operations, and to improve safety levels in a

wide range of applications, including the medical sector, through the use of our products and solutions. In a global perspective, the impact we make may seem limited. But as part of a larger movement, it is indispensable. Avoiding the unnecessary use of resources is a core feature of automation – and has been part of our DNA for decades.

In the year under review, KUKA was also faced with certain challenges that are influenced by factors such as global economic developments and digitalization. We made organizational changes to our business segments and implemented technical and workforce-related adjustments in order to meet our productivity targets.

At the same time, we have invested heavily throughout the world, not only in Germany but also in China and the USA. We believe this has put us in a good position to address the challenges ahead. After all, that too plays a key part in acting sustainably as a company: investing with foresight in order to be well-equipped for the requirements and markets of the future.

We would like to thank all our stakeholders for placing their trust in us, our employees for their hard work and commitment, and you for your interest in our Sustainability Report. We look forward to receiving your feedback!

Peter Mohren
Peter Mohren





Corporate profile and corporate governance

Responsible leadership – successful management

Sustainability is a topic that must be lived and implemented equally by everyone. Responsible corporate governance sets an example in terms of awareness of opportunities and risks, and establishes the necessary structures and reporting lines required for managing a company like KUKA with foresight. Despite the structural changes at KUKA in recent years, this fundamental approach has not changed.

- › Responsibility in the era of Industrie 4.0
- › Our strategic focus markets
- › Corporate governance with responsibility
- › Sustainability management at KUKA

Responsibility in the era of Industrie 4.0

KUKA is one of the world's leading specialists in automation. We support our customers in the overall optimization of their value creation processes by providing comprehensive automation and digitalization know-how. In 2019, KUKA generated revenues of 3.2 billion euro (2018: 3.2 billion euro) with about 14,000 employees (2018: 14,250). The global technology group operates in more than 40 countries in Europe, the Americas and Asia.



14,000

employees

The company offers its customers everything they need from a single source: from the core component – the robot – to production cells, turnkey systems and networked production with the aid of cloud-based IT tools. Through its advanced automation solutions KUKA contributes to increased efficiency and improved product quality for its customers.

Industrie 4.0 – the next stage of the Industrial Revolution – is bringing digital, networked production, flexible manufacturing concepts and logistics solutions, as well as 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 have an edge on the competition. The strategic markets include the automotive, electronics, consumer goods, e-commerce/retail and healthcare industries.

The improved organizational structure – KUKA Business Organization (KBO) – introduced on January 1, 2019, comprises five business segments: KUKA Systems, KUKA Robotics, Swisslog, Swisslog Healthcare and China. The former centralized structure was loosened and the individual divisions were given greater responsibility. Consequently, the holding structure too was streamlined. The former business segment Swisslog was split into the Swisslog and Swisslog Healthcare segments in accordance with their range of products and services and their industry expertise. KUKA Aktiengesellschaft, headquartered in Augsburg, is the Group's holding company and is responsible for corporate activities within the group of

companies. The business activities of the segments are operationally coordinated by the respective managers, who in turn report to the Executive Board. With the exception of the China business segment, the segments operate globally and are supported by their local establishments and regional subsidiaries in both their sales efforts and their assembly and field service work.

3.2

revenue in 2019 in billion €

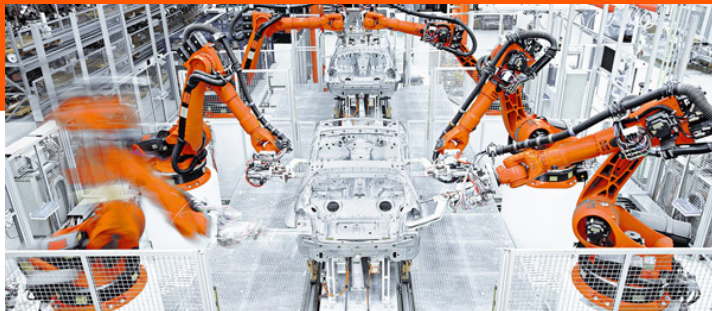
KUKA Systems division

The KUKA Systems division offers custom-tailored solutions for automating manufacturing processes in the automotive industry. These cover body production, the assembly of engines and transmissions, and also future-oriented business areas, such as automated guided vehicles in production environments, including fleet control software. Also included are automation solutions in the field of final assembly and the use of appropriate human-robot collaboration (HRC). There is a particular focus on electromobility. KUKA is developing systems for battery module and battery pack production as well as a charging assistant for the automated charging of electric and plug-in hybrid vehicles. The range of products and services covers the entire value chain of a system: from individual system components, tools and fixtures through automated production cells all the way to complete turnkey systems. Know-how lies in the bundling of

experience and expertise in engineering, project management, process knowledge, commissioning and service for the automated production of vehicles.

KUKA Systems has the expertise to build flexible and efficient manufacturing processes. KUKA can guide its customers towards Industrie 4.0 and electromobility with future-oriented solutions.

Markets in Germany and elsewhere in Europe are looked after from Augsburg, while the Greater Detroit area (USA) is responsible for the North/South America region and Shanghai handles the Asian market. Automated assembly lines and test rigs for engines and transmissions are designed at and supplied from the KUKA Systems sites in Bremen, Detroit and Shanghai. In Toledo (USA), KUKA Toledo Production Operations (KTPO) manufactures the successor model to the Jeep Wrangler – the Jeep Gladiator – for Chrysler under the terms of a pay-on-production contract.



KUKA Robotics division

The core component for automating production processes is provided by the Robotics division, which produces industrial robots together with robot controllers, cells and software. The broad product portfolio covers a payload range from three to 1,300 kilograms. This enables KUKA to meet the various requirements of its customers optimally.

Robotics also offers a wide range of support services. Customers can attend technical training and professional development courses in KUKA Colleges at more than 30 sites worldwide. Most robot models are developed, assembled, tested and shipped in Augsburg. The control cabinets are produced in two Hungarian plants, in Taksony and Fűzesgyarmat.

KUKA Robotics is continuously expanding the 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 & development activities have an important role to play here. KUKA's new products and technologies open up additional markets and create new applications for robot-based automation. Driven by the philosophy of Industrie 4.0, the focus of product development is on open networking and collaboration.

Open networking and collaboration are the core ideas of Industrie 4.0, the production of the future. This paradigm shift is already underway today, indeed the company is consciously forcing the pace. After all, robots will play the key role in the factory of the future. By taking these measures, industrial nations will be able to expand their competitiveness and, at the same time, counteract demographic change. Industrie 4.0 is not a buzzword for us, but a sustainable investment in our future.

Swisslog division

With the Swisslog division, KUKA is tapping the growth markets of e-commerce/retail, consumer goods and healthcare in the field of intralogistics. Based in Buchs, Aarau (Switzerland), Swisslog serves customers in over 50 countries worldwide. From planning and design, through to implementation and service over the whole life cycle of a system, Swisslog provides integrated systems and services from a single source.



The division implements integrated automation solutions for forward-looking warehouses and distribution centers. As a general contractor, this division offers complete turnkey solutions, from planning through to implementation and service, employing data-controlled and robot-based automation in particular. Swisslog offers an Industrie 4.0 portfolio with smart technologies, innovative software and adapted support services to ensure that the competitiveness of its customers in the logistics sector is sustainably improved. By combining Swisslog logistics solutions with the robotic automation solutions of the other divisions of the Group, KUKA offers new possibilities of flexible automation along the entire value chain.

Swisslog Healthcare division

The Swisslog Healthcare division (HCS) develops and implements automation solutions for modern hospitals. The aim is to boost efficiency and increase patient safety. With the aid of process optimizations in the field of medication management during and after in-patient treatment, hospital staff can gain more time for patient care. At the same time, the use of automation solutions demonstrably reduces the incidence of medication errors.



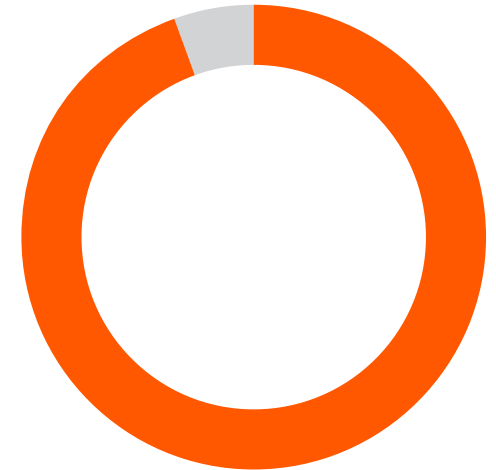
China division

The China segment comprises all business activities of the Chinese companies in the Systems, Robotics, Swisslog and Swisslog Healthcare divisions. In addition to KUKA industrial robots, automation solutions such as warehouse management systems and healthcare systems are developed, offered and sold in China. Industrial robots are produced at the Shanghai location. The first robot models for the Asian market were manufactured at the new production site in Shunde in 2019. Furthermore, research & development activities for new robot models, such as SCARA robots, are planned.



Shareholders

At the end of 2019, KUKA AG had a market capitalization of around 1.5 billion euro (2018: 2 billion euro). Shares are held by both institutional and private investors. At the end of 2019 – as in the previous year – 94.6 percent of the shares were held by Midea Group and 5.4 percent by other institutional and private investors. Furthermore, KUKA is also financed through debt capital.



Our strategic focus markets

KUKA's most important markets are in Europe, the Americas and Asia.



Automotive

The automotive industry has always been of great significance for KUKA. It is a very important driver of technology and innovation. The automotive segment currently accounts for about 50 percent of our sales revenues. KUKA will continue to grow around the world with its automotive customers and support them as a partner in automation and digitalization.

Electronics

The electronics industry is one of the most diverse branches of modern industry. It encompasses the production of electrical household appliances, cutting-edge technologies such as semiconductors, solar cells, precision medical equipment and electronic automotive and aerospace components as well as industrial electronics. The most important submarket with the highest revenues is the 3C market (computers, communications and consumer electronics). In the electronics industry, we are expecting great demand for automation and a significant rise in the number of new robots deployed in the coming years.

E-commerce/Retail

Electronic commerce results in large quantities of varied goods being sent to consumers via goods distribution centers. Fast and correct order processing is crucial for profitable operations and can only be achieved in the long term through automation. The e-commerce segment is therefore an important sales market for smart logistics concepts based on intelligent software combined with innovative, robot-based and data-based automation.

Consumer Goods

Robots have been efficiently supporting the production of fast-moving consumer goods (FMCG) for many years, especially in the food and beverage industry, but also in footwear or textile production, cosmetics and pharmaceuticals. New generations of robots that are sensitive and mobile, and thus able to work hand in hand with humans, supported by the software at the heart of every system, are opening up new applications along the process chain.

Healthcare

The healthcare sector is one of the most important growth markets of the future. Demographic change, medical innovations and the development of healthcare systems in emerging countries, as well as the resulting shortage of skilled workers and the increasing cost awareness of healthcare facilities, are creating a need for new solutions. The automated supply of medication can be part of the solution to the challenges in the healthcare sector: After all, the aim is to boost efficiency and increase patient safety. With the aid of process optimizations in the field of medication management during and after in-patient treatment, hospital staff can gain more time for patient care. At the same time, the use of automation solutions demonstrably reduces the incidence of medication errors.

KUKA Medical Robotics offers a comprehensive portfolio of robotic components for integration into medical technology products: KUKA robots are used in applications ranging from X-ray imaging and radiation therapy to patient positioning and robot-based assistance systems for surgical procedures in operating rooms, or as a supporting partner in the field of rehabilitation.



Corporate governance with responsibility

As a German stock corporation, the statutory rules impose on KUKA AG a dual corporate governance system comprising an Executive Board and a Supervisory Board. The members of the Executive Board share this responsibility for company management. The CEO coordinates the work of the Board; he is responsible for representing and leading the Board in its cooperation with the Supervisory Board and its members.

The Executive Board of KUKA AG was expanded in November 2019 from two members to three. The Chairman of the Executive Board (Chief Executive Officer, CEO) is Peter Mohnen. Andreas Pabst is the Chief Financial Officer (CFO) and Prof. Dr. Peter Hofmann served in the new position as Chief Technology Officer (CTO). On February 20, 2020, KUKA's Supervisory Board and Prof. Dr. Peter Hofmann decided by mutual agreement to terminate their working relationship for personal

reasons. For information on the compensation of the Executive Board, please refer to the Annual Report, starting on page 15.

The Supervisory Board of KUKA AG has twelve members pursuant to the Articles of Association. In accordance with the German Co-Determination Act, six members are appointed by the shareholders and six by the employees. Four Supervisory Board mandates were held by women in 2019. The ratio of women on this board is thus 33 percent. The Supervisory Board is elected every five years, the next elections being scheduled for 2023. The responsibilities of the Supervisory Board include the appointment of members of the Executive Board as well as their supervision and the provision of advice. The Chairman of the Supervisory Board, Dr. Andy Gu, coordinates the work of the Supervisory Board. Furthermore, the Supervisory Board and the Executive Board

regularly inform themselves about key topics. The remuneration of the Supervisory Board is also outlined by KUKA in the Annual Report on page 19.

The Supervisory Board has formed five committees. An overview is provided on page 12 of the Annual Report. Environmental and social issues impact many topics, and these are dealt with by the Supervisory Board, both in the Audit Committee and in other individual committees responsible. An explanation of the diversity concept is published in the Annual Report, starting on page 11.

In terms of corporate governance, KUKA strictly adheres to the guidelines of the German Corporate Governance Code. The objective is to continuously enhance the trust in corporate governance by combining sustainable corporate control and the necessary transparency.

Sustainability management at KUKA

For KUKA, sustainability means responsible corporate action towards the environment, our employees, customers, investors and our social environment. The goal is the continuous and sustainable further development of the company in view of dynamic changes in the economy, environment and society.

Various departments in the company monitor and analyze these changes in terms of how our business activities impact the corresponding issues and, conversely, how external trends impact KUKA. We also monitor changes in the legal framework that affect sustainability factors so that we can respond with appropriate measures as required. Accordingly, sustainability management is carried out by Procurement, Human Resources or Facility Management, depending on the issue. At Group level, Corporate Social Responsibility will in the future work with the various divisions to formulate, among other things, Group-wide goals and strategies. The aim is to identify opportunities and risks at an early stage in



The goal is the continuous and sustainable further development of the company.



order to develop appropriate measures. The department reports directly to the CFO within the scope of management reviews.

The Sustainability Report is prepared on behalf of the Executive Board and approved at an Executive Board meeting. After a preliminary review of the non-financial report by the Audit Committee of the Supervisory Board, the final review is carried out by the Supervisory Board.

Exchange with stakeholders

KUKA is in regular contact with various sectors of society. These may at times have quite different perspectives and demands on the company and may impact KUKA’s reputation. Our key stakeholders are customers, business partners, suppliers, but also investors and shareholders as well as media representatives, the public and our employees.

Communicating openly with these stakeholders is important to KUKA, because this forms the basis for mutual understanding and acceptance of business decisions. The respective divisions are responsible for communicating with the various stakeholders. We have been collaborating closely with various customers for many years, for example through implementing technical innovations in industrial production within the scope of joint projects. Purchasing is the point of contact for suppliers, HR for employees, and the Press department for media representatives. The Investor Relations department is in direct contact with investors and analysts. Sustainability rating agencies are served by the Management Systems department. Since 2008, KUKA has participated in the CDP regularly, which analyzes information relating to climate risks from a financial perspective.

The allocation of the added value in KUKA Group to the key stakeholders may be noted in the Annual Report.

The company is additionally engaged in numerous organizations and initiatives, in many cases playing an active role in various working groups. Within the German Mechanical Engineering Association (VDMA), these are, for example, the Corporate Responsibility and Public Relations working groups as well as various OPC UA working groups (Open Platform Communications – Unified Architecture). In addition, KUKA is a member of the following associations and organizations:

BDI – Federation of German Industries, Department of Digitalization and Innovation	EUnited – European Engineering Industries Association	euRobotics
IEEE Robotics & Automation Society	IFR – International Federation of Robotics	Industrie 4.0 Platform
RIA – Robotic Industries Association	VDE – German Association of Electrical Engineering, Electronics and Information Technology	VDMA – German Mechanical Engineering Association



Risk management

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

Identified risks – including risks arising from sustainability issues – are assessed throughout the Group according to their potential impact on the company’s business development and the achievement of corporate goals (such as revenues and EBIT). This also applies to changes in the legal framework that influence sustainability factors. The analysis is performed qualitatively and, if possible, quantitatively, taking into account the probability of occurrence. 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 collected in this way is summarized in a monthly risk report to the Executive Board.

The managers of the divisions and subsidiaries are directly responsible for the early identification, control and communication of risks.

Impact on the economy, environment and society

KUKA’s products and solutions make an important contribution to the economic growth, technological progress and improved working conditions of its customers. For this reason, KUKA considers itself to be a partner to its customers and a responsible employer for its workforce and their families.

KUKA protects the environment through the careful use of natural resources and an effective environmental management system. Applicable laws and regulations are always observed. KUKA takes this responsibility seriously and is also aware of any negative effects that may be associated with its own actions and which could have consequences for the economy, environment and society as well as for the company and its employees if they do occur.

Material sustainability topics

Sustainability stands for the equal consideration of economic, ecological, and social or societal aspects. In order to be able to reconcile this with a corporate strategy, the topics relevant to our industry and to us as a company must be identified. In this context, we also take into account the demands placed on us from outside the company.

In 2017, KUKA underwent a targeted process to analyze material topics for sustainability management. The resulting list of 13 topics was validated in 2018 and included requirements of the GRI Standards and the German CSR Directive Implementation Act (CSR-RUG).

In 2019, we linked these topics to the Sustainable Development Goals (SDGs) of the United Nations. In doing so, we addressed the question of which SDGs are relevant for KUKA in concrete terms at the level of the SDG targets. The question was whether our business activities represent an opportunity or a risk in terms of achieving the SDGs. In this Sustainability Report, we have presented an abbreviated form of the results in orange “SDG Spotlights”. Although our analysis has included a large number of SDG targets, our “SDG Spotlights” here only refer to the material topics as identified by our materiality analysis.



Results of the materiality analysis

Material topics prioritized by order of importance	Concerns according to CSR Directive Implementation Act	Material impacts internal and external to the company	GRI Standards
Digitalization/automation	Social concerns	Internal & external	GRI 203 Indirect Economic Impacts GRI 418 Customer Privacy
Training and further education	Employee concerns	Internal	GRI 404 Training and Education
Product safety	Social concerns	External	GRI 416 Customer Health and Safety GRI 417 Marketing and Labeling
Leadership and values	Employee concerns	Internal	GRI 402 Labor/Management Relations
Diversity	Employee concerns	Internal	GRI 405 Diversity and Equal Opportunity
Employment	Employee concerns	Internal	GRI 401 Employment
Procurement	(not material)	Internal & external	GRI 204 Procurement Practices GRI 308 Supplier Environmental Assessment GRI 414 Supplier Social Assessment
Anti-corruption and fair competition	Anti-corruption	Internal	GRI 205 Anti-Corruption GRI 206 Anti-competitive Behavior
Human rights	Human rights	External	GRI 407 Freedom of Association and Collective Bargaining GRI 408 Child Labor GRI 409 Forced or Compulsory Labor
Sustainable/efficient products	Environmental concerns	External	GRI 302 Energy
Occupational health and safety	(not material)	Internal	GRI 403 Occupational Health and Safety
Resource-saving production	(not material)	Internal	GRI 302 Energy GRI 303 Water and Effluents GRI 306 Effluents and Waste GRI 307 Environmental Compliance
Social engagement	(not material)	External	GRI 413 Local Communities



Automation and digitalization

Expanding automation and digitalization – seizing opportunities

Automation and digitalization are changing our lives and thus also the way we work and how the economy is organized in industrialized countries. Human work is acquiring a new status and job profiles are changing. The more processes are digitalized, the more important the issue of data and information security becomes. This is essential for KUKA because it is the key to our trustworthiness towards our customers. It is for this reason that we not only develop digital innovations, but also contribute to their level of security.

- › Digitalization under the banner of data security
- › SDG spotlight
- › Partner in Industrie 4.0
- › Tested data and information security
- › Digitalizing our own company



Digitalization under the banner of data security

With its products, KUKA is a driving force behind automation and technological progress and is an innovation leader in Industrie 4.0.

The global megatrends of digitalization and automation are changing the working world. Job requirements and descriptions are changing. New and often interdisciplinary qualifications are needed. Some established occupational profiles will become less important and new ones will emerge. Employees at our own company and also those of our customers will have to be prepared for this.

KUKA is involved in various different committees to help shape the world of Work 4.0. For us, this development is centered on humans. In industrial companies, humans are needed for coordinating and supervisory tasks, for example. On the other hand, recurring industrial processes become more systematic and efficient as the degree of automation increases.

Digitalization is undoubtedly accompanied by new uncertainties related to application risks, and we have to make higher demands on the safety of products. The legislature has regulated the application safety of robot-based automation solutions, and KUKA conscientiously implements the corresponding requirements. This also

applies in countries and regions where less stringent rules apply than in Germany. We therefore also involve our suppliers. Thus, we can ensure that all Group companies worldwide achieve the same standard in the market.

The KUKA Product Safety guideline serves to implement the product compliance requirements, including safety aspects, and centrally regulates the necessary requirements, tasks, activities and responsibilities. The guideline is managed by the central Product Compliance department, which reports to the head of the Legal department. Customers learn how to work safely with the robots and program them at our KUKA College.

KUKA also sees its responsibility as an innovation leader in the protection of customer and employee data. For this purpose, a data protection management system has been in place since 2018 to systematically organize, implement and monitor the high data protection requirements. The entry into force of the General Data Protection Regulation of the European Union in May 2018 and data protection laws applicable in China, Brazil, the USA and elsewhere show that KUKA is on the right track here.

In our cooperation with automotive customers, we additionally use the Trusted Information Security Assessment Exchange (TISAX), an industry-specific standard for information security. In 2019, a corresponding online training program was introduced. Our information security management system was successfully audited according to TISAX criteria at various locations in 2019. Further locations are being prepared for TISAX certification.



Customers learn how to work safely with the robots and program them at our KUKA College.

SDG spotlight



In the area of digitalization, we have identified the following opportunities and risks with regard to the fulfillment of selected SDG targets:

9.4 Modernizing and retrofitting infrastructure to make it more sustainable

Opportunity: through our products and solutions we contribute to the realization of the Industrial Internet of Things (IIoT) and thus enable efficiency gains for our customers.

9.5 Enhancing scientific research, upgrading industrial technologies and encouraging innovation

Opportunity: KUKA is cooperating with associations and other industrial partners to establish common standards that can unify IIoT concepts and thus help them to achieve a breakthrough.

Partner in Industrie 4.0

Digital transformation is the central topic for KUKA – the digitalization of not only our own processes and production sequences but also those of our customers and partners. The aim is to transfer the knowledge of mechanical engineering into the digital world. The Industrial Internet of Things should be viewed as a holistic solution. We operate in a dynamic, innovation-driven market environment which is continuously being redefined.

KUKA is a leader in industrial automation and digitalization. In this role, we are aware of the corporate responsibility that it entails. We are working intensively together with researchers, politicians, partners and customers to shape these developments.

The changing world of work

The world of work has developed in many different ways and has also been reinvented to a certain extent. It is shaped by technological progress, demographic change and institutional changes. At the same time, the demands on companies with regard to innovative ability and flexibility are growing, making ongoing professional training and preparation of employees for the changes in the working world a central challenge.

KUKA is contributing to this process of change with its products and solutions. This is not always viewed positively, because robots and automated industrial processes often arouse the feeling that human work will no

longer be worth anything at some stage. However, history has shown that the net effect of technical innovations has not been less employment and higher unemployment rates. Instead, occupational profiles have shifted and new jobs have been created in areas that were previously unknown. And this trend will presumably continue in the coming years. Work 4.0 will be more connected, digital and flexible. This is attributable to new technologies, new possibilities for machine-to-machine communication and also the emergence of new value chains in a wide range of industries. Labor markets are becoming more volatile and changes in the cooperation between humans and machines make new skills necessary for employees.

Today, robots perform many tasks, but they cannot carry out an entire qualified occupation. They complement humans, taking on jobs that are usually simple, repetitive, physically demanding or even pose a health hazard: tasks that humans would prefer not to perform themselves, or which they are physically not even able to carry out. Robots are incapable of creativity, intuition and the ability to execute several tasks consecutively or to multi-task. Humans and robots thus complement each other.

In many areas, the future of automation lies in human-robot collaboration (HRC). Humans are supported by robots – a principle that has defined robotics from the beginning. In the factory of the future, there is no separation between automated and manual workstations. Here, the human operator and the robot collaboratively work together. KUKA has already implemented many HRC applications together with customers.

A striking aspect in this context is that human-robot-collaboration projects are still mostly realized in existing systems. This, however, does not tap the full potential of HRC. HRC is a planning principle. It allows tasks to be divided up between humans and robots in a sensible manner. Where monotonous tasks are concerned, HRC-capable robots ease the load on human workers. This allows humans to take care of more challenging activities. It is difficult to implement these benefits in existing systems. The added value is created when production is completely rethought from the beginning. For this reason, when it comes to system planning: revolution is better than evolution.

Cooperation in standardization

Businesses and politicians are working together to make the German economy fit for the future and prepare workers for the requirements of digitalization. KUKA is engaged in the Industrie 4.0 Platform together with the Federal Ministry for Economic Affairs and Energy and the Federal Ministry for Education and Research. For this purpose, KUKA is actively participating in various working groups on standardization, the security of communication networks, legal issues surrounding Industrie 4.0 and new business models.

Industrie 4.0 requires common, manufacturer-independent and secure machine communication standards to ensure that the networking of machines, IT systems and people can proceed smoothly. KUKA is a committed advocate of uniform machine-to-machine communication standards – such as OPC UA – through the German Mechanical Engineering Industry Association VDMA. KUKA played a major role in the creation of the OPC UA Robotics Companion Specification Part 1, the first version of which (V1.0) was presented to the public at the OPC Days in Wolfsburg in May 2019. It defines a manufacturer-independent semantic model for robotics.

Since fall 2018, KUKA has been part of the OPC UA Field Level Communication Initiative (FLC) within the OPC Foundation, together with more than 20 leading international manufacturers of automation equipment. The goal here is to develop specifications for standardized communication based on OPC UA.

However, we also contribute to keeping practical requirements up to date with the necessary changes by regularly assisting in adapting curricula in vocational training and further education.

Overcoming isolated solutions through cooperation

The capability of networking different machines is the basis for a successful fourth industrial revolution. In October 2019, KUKA therefore became a founding member and partner of the “Open Industry 4.0 Alliance”. The objective is to enable up to 80 percent of a manufacturing company’s machines to communicate with each other in a Smart Factory. In doing so, proprietary isolated solutions must be overcome in order to give a decisive boost to integrated digital transformation in industry.

The companies in this alliance have committed themselves to implementing uniform standards for integrated communication between machines. Among other things, the framework includes agreement on existing industrial communication standards such as IO-Link, OPC UA or NAMUR.

The members of the Alliance contribute their core technical competencies in such a way that operating companies and end users benefit from an established, reliable and scalable overall solution – the Alliance’s “Interoperability Framework”. The focus is always on secure and simple data exchange between the partners. The alliance sees itself as an open, standardized “ecosystem” in which additional companies are always welcome.

Virtual commissioning

By using virtual commissioning for complex production systems, development and start-up times can be greatly reduced. Downtimes or production losses are avoided through the high quality of programming. Virtual commissioning transfers a major part of the real commissioning procedure into a digital model world. We create virtual three-dimensional models of the systems and products, taking account of available resources and the production shop layout. This way, all system functions can be fully tested in the virtual world first.

In addition to automatic operation, all special modes as well as safety concepts and accessibility can be checked. Then we integrate them into an end-to-end process chain and simulate the flow of materials in real time. Virtual engineering allows us to control, test, verify and optimize the material flow in a virtual model. The strengths of virtual commissioning become particularly apparent during integration phases. Here the hardware and software to be integrated can be tested and verified in interaction with any system components that are already present. The interruption in production is reduced to a minimum.

New business models through digitalization

While digitalization has long since arrived in most people's private lives – looking at smartphones, navigation systems or airport check-in using QR codes – there is still untapped potential in many areas of industry. This is precisely where digitalization offers enormous opportunities. The challenges for mechanical engineering are particularly significant, because technological products and solutions require additional resources.

Let us consider matrix production, for example. Matrix production has the potential to become a decisive competitive factor through configurable manufacturing cells, the transfer of parts and tools using automated guided vehicles (AGVs) and the separation of logistics from production. Especially in volatile markets, when product series have to be produced efficiently even in small quantities, matrix production offers advantages. It enables (small) customer-specific series to be manufactured without the restrictions resulting from industrial mass production.

Matrix production is based on categorized, standardized production cells. Virtually any number of these can be arranged in a grid layout. All cells feature product-neutral equipment and product-dedicated basic functions.

Inside the cells, there are turntables for the setdown of parts, tool locations and robots which perform the relevant process. These manufacturing cells can be individually expanded with process-specific equipment. Welding, adhesive bonding, punching, brazing and clinching: virtually any process can be integrated.

Counterbalance for shortage of skilled labor

Automation can also help to mitigate the consequences of demographic change. Aging populations and ensuing skills shortages are already a major societal challenge in many industrialized nations. Robots can take on various tasks, enabling valuable skilled workers to stay healthy (and on the job) for longer.

Due to the demographic shift, today there are already more elderly people and people in need of care than we can actually cater for at this time. Service robots can provide support in the care sector and take over logistics tasks such as disposing of medical waste, sorting food trays or managing medication. This gives nursing staff more time to look after patients. Service robots can also support people in their everyday lives at home, for example by fetching and carrying items.



Tested data and information security

KUKA has been working closely with many customers for a number of years and attaches great importance to protecting its customers' data.

KUKA is committed to providing not only safe automation solutions, but also to setting standards in terms of data protection and information security. That is why KUKA has a worldwide uniform standard in place for handling corporate and personal data.

Customer data are protected, for example, from unauthorized access and misuse, being processed in a CRM system that only a small number of authorized employees have access to. This has paid off: in the year under review, as too in 2018, no infringements of customer privacy or loss of customer data were reported to us.

The successful TISAX certification at various locations (see page 17) was an important milestone in 2019. This mutually recognized auditing standard for many original equipment manufacturers in the automotive industry is considered a prerequisite for close and trusting cooperation on future-oriented topics. The TISAX certification attests that KUKA has a uniformly high standard of data security for our customers. TISAX certification is currently being prepared for other locations such as São Paulo. KUKA is thus continuing to implement TISAX certification on a global scale with the goal of meeting the high demands of our customers in the future too.

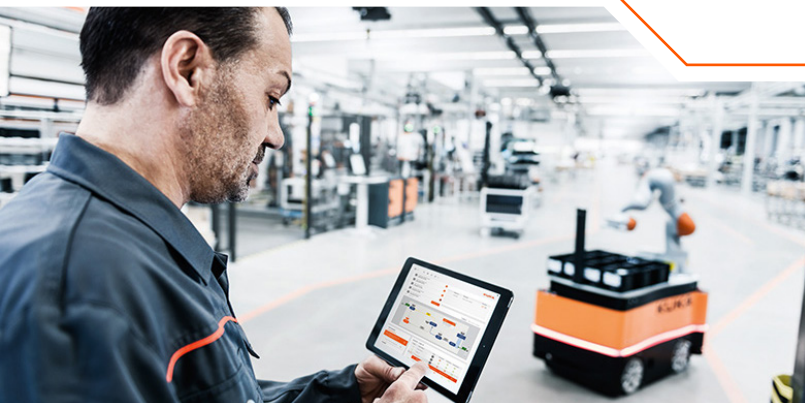
»» KUKA has a worldwide uniform standard in place for handling corporate and personal data. «

Digitalizing our own company

Digitalization was initiated internally at KUKA at an early stage. Various projects have been implemented in the POWER ON program, aimed at making corporate structures and employees fit for the requirements of the digital age. As a result, processes, data and the IT landscape are being improved worldwide and employees are being networked, thereby enhancing efficiency.

A glance at component machining at KUKA shows what future-oriented production looks like. All of the machines in the hall are connected to the cloud and feature various Industrie 4.0 functions. Similar to a smart watch or a fitness tracker, the robots and machines collect a wide array of data and transmit these data to the cloud. The data are then displayed in various visualizations on the user interface of a tablet computer, which gives

KUKA uses cloud-based solutions in its own production



Chatter

promotes global collaboration

production staff a digital overview of the entire hall. In the event of error messages, a kind of Wiki platform can be accessed – with almost half a million entries – in which our service technicians have compiled appropriate solution proposals over many years. Beyond this, every process step and virtual shadow can be traced by means of the built-in technology – similar to a black box on an airplane. It is also possible to be alerted by software to irregularities in the production process – comparable to an ECG.

In Hall 10 at the Augsburg location, there are seven cells equipped with a total of eleven robots. The robots come from KUKA, the machines at which they work are commercially available machine tools from various manufacturers. Among other things, the robots machine base frames, rotating columns and link arms. The components

are assembled in the adjacent robot assembly shop. The appropriate interfaces allow communication between robots and machine tools. The data that are collected – including those pertaining to components not manufactured by KUKA – are made available in the cloud. That way it is possible to have full visibility and exercise full control over the current production process, achieve a greater level of transparency and optimize task scheduling at all times.

We are also continuing to develop the corporate culture with a view to digitalization. KUKA 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.

» Processes become more transparent,
efficient and reliable «

KUKA CEO Peter Mohnen talks about future trends in digitalization

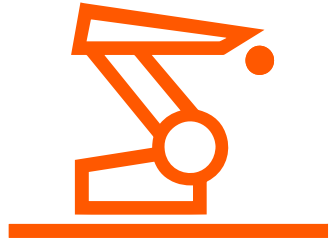
What do you see as the current challenges for KUKA against the backdrop of digitalization?

There are primarily two challenges, one for our customers and one for us. Many customers, but above all potential customers, are not yet taking full advantage of the opportunities that digitalization offers them in the area of production. The “Industrial Internet of Things” holds so much potential that from the customer’s point of view it is difficult to keep up with all developments and to identify a decisive added value. In theory, networking and digitalization require a level of perfection that is rarely found in practice behind the gates of the factory buildings. As a dependable expert, consultant and partner, we offer to make the life and work of our customers easier – through automation, digitalization and new technologies.



As for ourselves, we are intensively researching and developing applications for machine learning as a subfield of artificial intelligence as well as software solutions and communication standards between the components of a system. In Industrie 4.0, manufacturing systems are becoming more capable of learning, can adapt themselves to altered conditions in the production process and can be used more flexibly than a few years ago. The robot with its software-based controller is the heart of flexible production. It is not just about a machine, but about intelligent programming. Machine learning follows

no logic. On the basis of examples, the intelligent system learns which connections exist. It trains. At KUKA, we have set up a Smart Data and Infrastructure cluster, focusing on semantic technologies and machine learning. Robot systems with integrated cameras are increasingly able to recognize common features of objects correctly and act logically using the right algorithm.



The robot with its software-based controller is the heart of flexible production.

KUKA cooperates intensively with industrial partners in several fields of development. Can this accelerate developments?

Absolutely. Above all, this makes our innovations as practical and needs-based as possible. The digital transformation of our world requires openness and a fast pace. We won't be competitive if we claim to master everything ourselves. We work in consortia with partners from research and industry, for example, to come up

with better solutions in communications infrastructure. There are areas where the cloud is not the best place to store data when information needs to be forwarded and processed quickly during ongoing production – and this becomes ever more relevant as the diversity of components in a system increases. In the future, these processes will be more transparent, efficient, reliable and less maintenance-intensive than today. This also has a positive impact on the energy efficiency of the systems and thus also benefits the environment.

And if robots also start thinking, do we still need humans in industry at all?

Of course. Robot systems make work easier and our customers' processes more economical. However, artificial intelligence is still far from human intelligence. We are often not aware of which and how many processes are set in motion in the human brain to perform a simple movement. It is not merely a matter of combining a technical motion sequence and experience that you may soon be able to "teach" a robot. Humans always learn from mistakes, for example, but we cannot always let the AI-controlled robot make mistakes, that would be far too costly. After all, the "intelligence" of the systems is based first and foremost on the ability to react to certain situations and make decisions on a flexible basis. These skills do not come from nowhere, but require a great deal of programming. We have the right experts on board. While machines are able to imitate humans to a staggering degree, awareness ultimately involves more than just endless memory and logical interconnections.

The core of value creation in automation is shifting more and more from the construction of machines to software and IT competence. Furthermore, the range of application in industry will probably remain limited to comparatively simple and repetitive processes for the foreseeable future. Human experience and human creativity are ultimately irreplaceable.



Human experience and human creativity are ultimately irreplaceable.



Compliance

Following rules to create safety and security

With a compliance program, KUKA provides binding rules to ensure that all employees comply with the law and follow our self-imposed rules. Our compliance structure ensures the highest possible level of protection, based on fundamental ethical standards and maintaining our economic values. This also applies to product safety. It is our goal for no user to be harmed by our products, neither in terms of health nor through gaps in data protection laws. We thus create a safe and secure environment for customers, employees and our company.

- › Anti-corruption and bribery code
- › Compliance program expanded
- › Committed to product safety



Anti-corruption and bribery code

Even though our market environment is subject to dynamic changes worldwide, our fundamental ethical standards and the associated internal rules remain unchanged. As a foundation for our business activities, we have anchored our core values in rules. They are included in our Corporate Compliance Program and thus an integral part of our daily business decisions. Our core values are:

- » Honesty and respect for ethical principles as a core element of business
- » Compliance with applicable laws and regulations as well as our core values and internal guidelines
- » Effective use of resources and dealing with risks of the company
- » Responsibility of each individual for their actions

Corruption and bribery must be systematically combated for both legal and ethical reasons, and sanctioned where necessary. Cases of corruption entail reputational risks for our company and can result in fines, claims for damages or exclusion from public tender procedures.

In competition with other companies, KUKA prohibits any form of corruption and demands abidance by the principles of fair competition. This self-image is a fundamental part of our corporate culture. It includes not participating in price fixing and other anti-competitive practices.

Compliance structure

The Compliance department falls within the remit of the CEO of KUKA Aktiengesellschaft. The Chief Compliance Officer is responsible for the compliance program and its operational implementation. Moreover, the senior executive levels are involved in the operational implementation as part of their leadership responsibility; this responsibility devolves to all management levels. In order to implement compliance together with all employees and external partners, we apply various processes and measures. All of this forms our Compliance Management System (CMS).

»» We constantly strive to uphold our ethical principles. «

Compliance program expanded

Compliance with legal framework conditions and internal guidelines is firmly rooted in the Corporate Compliance Program. The content of this program is laid out in our Corporate Compliance Manual. It also contains the most important points of contact as well as 16 corporate policies which establish the rules of conduct, cooperation and personal commitment and framework for KUKA's business operations.

The Manual constitutes the basis of the CMS. It is available to all employees via the company-wide intranet and is accessible to the public on the [company's website](#). The concept of the Manual has been gradually revised since 2018 to adapt it to current requirements. In 2019, we revised our policy for data protection and information security. We have adapted individual passages of the Manual to the changes in the corporate structure during the year under review. At the end of the year, KUKA also drew up a code of conduct for suppliers, which in the future will provide binding rules for their obligations in dealing with environmental protection as well as labor and human rights. Another foundation for compliance in the company is an internal database in which compliance inquiries and issues are systematically recorded.

Online and classroom training

In order to instruct employees about compliance, training measures have been made an inherent feature of the CMS. They are provided in various formats, including computer-assisted learning methods (e-learning) and worldwide classroom training on selected topics. Participation is mandatory for all employees, which is confirmed with a certificate after successful completion. New employees are invited to participate in e-learning at regular intervals. All employees are urged to refresh their compliance know-how on a regular basis.

E-learning programs are used to teach the core values as well as fundamental compliance skills and codes of conduct. Available in 13 languages, the program has a modular format and is geared to specific target groups. In 2019, a new Compliance Risk Map module was developed at KUKA which will be rolled out from 2020 onwards. In the year under review, various options for enhancing the training program were also evaluated. Among other things, this involved integrating webinars, improving user-friendliness and increasing the training frequency.

For employees who are unable to participate in the Corporate Compliance e-learning program, we prepared a new offline training document in 2019. It is aimed, for example, at employees in Logistics and Production. It has been adapted to this target group in terms of content and language, and is available as of 2020.

In order to sensitize new employees to compliance as soon as they join the company, the topic is presented during the so-called Onboarding Days at selected locations. Additionally, 160 of the Group's international managers were trained in compliance at the Top Management Meeting in 2019. The focus here was on the importance of leadership practices for integrating corporate compliance into the corporate culture.

Proven communication channels

It is important to us that employees can report suspected compliance violations without fear of negative consequences. If a violation is suspected, employees have various communication channels at their disposal. They may report concerns to their supervisor, the HR department or Compliance Officers who are deployed on-site and regionally. If an employee chooses to make an anonymous report, the suspected violation may be disclosed to the ombudsman, who has no position in the company and is therefore independent. The ombudsman forwards the issues to the Compliance Officer in anonymous form. The communication channels which are currently in place also proved effective in 2019. During the fiscal year, KUKA Group became aware of 51 potential compliance incidents. These were carefully processed and, if necessary, appropriately sanctioned.

Compliance training for third parties

KUKA has been working closely with the Center for Professional Development and Knowledge Transfer (ZWW) at the University of Augsburg for many years. As in previous years, KUKA once again organized the Company Campus Day of the “Compliance Officer (Univ.)” certification course in 2019. Due to the high added value of this exchange, the event was even held at KUKA as part of both courses in 2019.

The Company Campus Day gives participants an insight into how compliance is implemented in practice in an industrial company. In addition to the regular lectures given by ZWW course instructors, the participants had an opportunity to learn about the company’s compliance work. Easy-to-follow presentations by members of the KUKA Compliance organization made the topic tangible, creating an open platform for experts to exchange information and opinions.



Safety is our duty – even after delivery of our products and solutions.

Committed to product safety

To make our products as safe as possible, quality is very important to us. Never once in the history of the company has there been a personal injury for which we as the manufacturer were responsible. This is also an obligation for us for the future. From production, purchasing or quality management to service and sales: safety is our duty – even after delivery of our products and solutions. That is why KUKA already works vigorously during the development and design phase of new products on excluding product defects or operating errors to the best possible extent. All details and responsibilities are explained thoroughly in the KUKA Product Safety guideline.

With worldwide product monitoring, we identify early on whether measures need to be implemented. In this way, we ensure that all products on the market are continuously monitored for their practical usability and that all scientific findings and empirical values are collected. Should safety measures be required, processes and procedures are clearly defined and are also mandatory for suppliers of products or components.

KUKA is committed to protecting the information processed by our customers and ourselves. To this end, we have incorporated the issues of information security and data protection into the product development cycle as fixed elements and take them into account with the goals of “security by design” and “privacy by design” when developing the hardware and software for our products.

A further aspect that we consider in the context of increased networking is the principle of “security by default” or “privacy by default”. Here KUKA configures the factory settings in our products or other applications in such a way that users and their data are protected without any corresponding settings having to be made to this effect.

Security guidelines and contact options

The Product Compliance department at KUKA regularly monitored compliance with the Product Safety guideline during the year under review, checked any deficiencies and successfully remedied them. In addition to the safety aspects, the guideline also addresses various product labeling requirements, which are playing an increasingly important role in opening up new markets and eliminating trade obstacles in global supply chains. The product directives of the European Union, particularly the Machinery Directive, which applies to all industrial robots and production systems, play a key role in this, as do the market-specific certification and licensing requirements, for example those for the North American or Asian markets.

KUKA ensures the effective fulfillment of these requirements through continuous training of the employees, deployment of internal and external specialists, as well as cross-departmental reviews at various times during production and before the market entry of products. In fiscal year 2019, a total of 105 KUKA employees were trained in twelve product compliance events.

Globally applicable guidelines on information security and data protection have been implemented; these provide a uniform level of protection and are based on internationally recognized standards (e.g. ISO 27001, EU GDPR). Our employees are able to contact the responsible departments within KUKA directly in the event of queries or incidents. In addition to the personal points of contact, general information security and data protection e-mail accounts can also be contacted.

Information security and data protection in employee training

Information security and data protection are issues that affect all KUKA employees. For this reason, in addition to the extensive internal regulations, there is also a mandatory online training course on data protection in German and English. It must be successfully completed by all employees and managers every two years. In the middle of the year under review, an online training course on information security was also introduced, which is available in German, English, French and Chinese. This too must be successfully completed by all employees and managers every two years. For employees who do not

have access to a PC, corresponding classroom training is available. Specially tailored training courses have been created for groups of people who are confronted with particular requirements regarding information security or data protection (e.g. information security for developers, data protection for HR employees).

User training courses in KUKA Colleges

Our customers and business partners learn the safe handling of robots and cells and their programming in user training courses at KUKA Colleges around the world. In addition to the expert operation of the machines and components, the aim is to prevent accidents and increase work safety for the customer.



Ecological responsibility

Conserving resources – protecting the environment

An intact environment and responsible use of natural resources are important prerequisites for long-term economic growth. However, the pressing climate problem, polluted air, increasingly scarce resources, increasing waste problems, contaminated soil and water speak for themselves. As an industrial company, KUKA wants to make a measurable contribution to the reduction of environmental pollution. For this, we are making a start in our own company: we are reducing our consumption of energy and other resources and reducing our quantities of waste.

- › Responsibility for the environment
- › SDG spotlight
- › Systematic energy saving
- › Conserving resources

Responsibility for the environment

Environmental issues are continuously taken into account and evaluated by the environmental management team together with the employees responsible. The main priority is energy consumption in production, but we are also focusing on waste and water management. Closely related to the consumption of power and thermal energy at the sites and in the vehicle fleet are the associated CO₂ emissions.

CO₂ emissions are a contributory factor in climate change. Mindful of our responsibility for climate protection and in the interests of efficient production, we therefore aim to keep our carbon footprint at all sites to an absolute minimum.

Another factor that affects the environment is waste. Water and soil can also be adversely affected by the legal disposal of waste, or even by unforeseeable accidents. Such events cannot be completely ruled out despite all precautionary measures taken. KUKA therefore takes wide-ranging preventive measures to ensure continual minimization of the potential environmental impact.

Most of our production locations work according to internationally recognized management system standards in the areas of quality (ISO 9001), environment (ISO 14001), energy (ISO 50001) and other industry-specific regulations, e.g. VDA 6 Part 4.

Throughout the Group, our guidelines for [Personnel Policy and for Quality, Health, Safety and Environmental Management](#) apply. For many years, KUKA has had a cross-location environmental management system lying within the responsibility of the Group's Executive Board. After a focus on the locations in Germany and the Czech Republic in 2018, 2019 saw successful completion of certification to ISO 14001 in China and Austria and to ISO 50001 at the three sites in Hungary.



KUKA products enable innovative solutions and projects to be created.



As an industrial company, KUKA wants to make a measurable contribution to the reduction of environmental pollution.

SDG spotlight



In the area of production, we have identified the following opportunities and risks with regard to the achievement of SDG targets:

7.3 Doubling the rate of improvement in energy efficiency

Opportunity: energy-efficient production enables us to operate more efficiently and save costs.

Risk: industrial production is intrinsically energy-intensive; not improving energy efficiency would mean wasting resources.



8.4 Improving resource efficiency in production and consumption

Opportunity: with energy-efficient production, we operate more efficiently and save energy and resources.

Risk: industrial production is intrinsically energy-intensive; not improving energy efficiency would mean wasting resources.



9.4 Modernizing and retrofitting infrastructure to make it more sustainable

Opportunity: we are investing in LED lighting, automated shutdown of machinery and similar measures in order to make it more robust and efficient.

9.5 Enhancing scientific research, upgrading industrial technologies and encouraging innovation

Opportunity: we invest in research and development, collaborate with suppliers and research institutes, and are thus also able to improve the processes in our production.

12.2 Sustainable management and efficient use of natural resources

Opportunity: with our sustainability management and efficient use of resources, we can save costs.

Risk: if policies or measures are not in place, we waste resources and bear unnecessary costs.

12.4 Environmentally sound management of chemicals and all wastes

Opportunity: we pursue a forward-looking and legally compliant approach to chemical and waste management.

Risk: damage caused by accidents or mismanagement can have serious consequences.

12.5 Substantial reduction of waste

Opportunity: by reducing the amount of waste, we reduce the impact on the environment and save disposal costs.

Risk: if these measures are not in place, the opposite effects would occur.

Systematic energy saving

With our certified environmental and energy management systems, we ensure that negative impacts of our energy consumption are kept as low as possible and continuously minimized.

However, saving energy does not only make sense for ecological reasons. Energy costs are a significant cost factor in every industrialized country. At its production locations in Germany, KUKA analyzes power consumption

with the aid of a software tool. Detailed analyses – for example of the paint shop, individual assembly areas or production machine units – help us to initiate improvements as needed. Data are collected using meter installations with more than 560 measurement points in Augsburg alone, for example. Environmentally friendly and energy-saving influences that have an impact on the purchase of new components are assessed at all sites. All data are collected centrally and made available to the locations for further optimization.

KUKA is participating in the “DC-Industrie 2” project as an associate partner. The objective of this project, which is funded by the Federal Ministry for Economic Affairs and Energy, is to supply power to industrial plants via a smart, open DC network. This is relevant for the use of our products at the customer’s premises, but also, of course, for our own production. That is because it enables renewable energy sources to be integrated more efficiently, as conversion losses are reduced. Moreover, electric drives can feed their braking energy back into the DC supply system without loss. Until now, the braking energy has been converted to heat by braking resistors and thus dissipated unused.

Further measures to reduce our power consumption include:

- » ongoing conversion of lighting to LED,
- » automated shutdown of machinery,
- » demand-oriented, automated control of heating, ventilation and air conditioning systems,
- » regulation of light intensity depending on daylight,
- » modern, energy-efficient air compressors and refrigeration systems,
- » average annual generation of 25,000 kWh of solar power at the Augsburg site,
- » installation of programmable thermostats,
- » adaptation of the temperature of the hot-water heater, and
- » raising the awareness of employees for responsible use of energy.

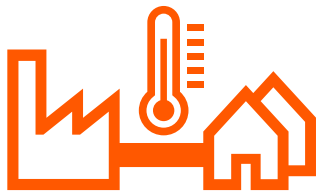
Energy-efficient KUKA robots manufacture even complex designs with high precision.



New energy data management

A project for the global collection of all energy data is pursuing KUKA's strategic environmental and energy goals worldwide. These are:

- 1. Lowering of energy consumption
- 2. Lowering of CO₂ emissions
- 3. Reduction of waste
- 4. Research into and development of sustainable products and technologies



Around 44,000 kW of heat can be transported via the new district heating pipeline alone – this corresponds to a climate-neutral thermal capacity for 4,400 single-family homes.

The production locations integrated into the energy data management system evaluate their data, set detailed consumption targets and develop measures for reduction. The data are recorded centrally each quarter and evaluated.

Energy consumption

in MWh	2017	2018	2019
Electricity	56,369	52,599	48,379
Heat	40,443	41,155	34,607
Total	96,812	93,754	82,986

Total energy consumption fell in 2019 due to the lower production volume and was reduced by additional measures such as the more energy-efficient use of buildings and the introduction of energy-saving measures, particularly at our US companies.

KUKA is investing in an environmentally-friendly and future-proof energy supply. A new, almost CO₂-neutral refrigeration plant has been built at the Augsburg location, as well as new buildings that have been heated via district heating since 2015. As part of the new site concept, KUKA once again invested in the expansion of the district heating network in 2019. A new district heating pipeline has been put into operation by the Augsburg public utility company and offers KUKA greater supply reliability. This also created the basis for the continued use of district heating in the case of expansions to the site, thereby minimizing the environmental impact of energy consumption. The new district heating pipeline also supplies the surrounding industrial estates. Around 44,000 kW of heat can be transported via the new

district heating pipeline alone – this corresponds to a climate-neutral thermal capacity for 4,400 single-family homes. In opting for district heating, KUKA set the stage at the Augsburg location for an energy-efficient, environmentally friendly and future-proof energy supply for itself and the surrounding industrial areas.

The use of district heating enables KUKA to reduce CO₂ emissions significantly. We also meet the requirements of the latest version of the German Energy Saving Ordinance (EnEV) in terms of energy efficiency and the requirements of the Renewable Energies Heat Act (EEWärmeG) for new and existing buildings. Through the modernization and increase in efficiency of the entire heating system, additional savings are expected in consumption and thus in the operating costs.

Lecture series on energy efficiency

A series of lectures on energy efficiency, organized by the Bavarian Association of Metal and Electrical Companies (bayme), addressed a broad range of companies. KUKA itself contributed its knowledge of the construction and programming of energy-efficient systems with seven lectures. The teaching material, based on decades of experience, was developed in an internal project over several years. It includes both the calculation of energy consumption and its optimization, for example by programming a more energy-efficient robot path.

Automation of in-house logistics

We have further increased the degree of automation in our production facilities. Logistics concepts such as material supply via kanban systems, for example, reduce our internal transport routes as well as shipments from and to suppliers. In this way, we permanently reduce CO₂ emissions.

The optimized layout of production halls, including on-site parts supply, results in short transport routes. Automation solutions promote an efficient flow of parts. Replacing our forklifts with a tugger train in the hall has also promoted energy efficiency.

In 2019, we built our own climatic chamber to test robots under various temperature conditions. This saves us the expense of transporting a robot system to external test laboratories, and enables us to reduce the number of test runs and increase the efficiency of our product development.

CO₂ emissions at our largest production locations totaled 31,923 tonnes in 2019 (2018: 35,353 tonnes). In 2019, the reduction of CO₂ emissions was in line with that of energy consumption, mainly due to the lower production volume.

Conserving resources

Within the framework of the environmental management system, we also consider the development of waste and (waste)water volumes, trying to take measures to reduce them. With forward-looking environmental management, we are thus able to make measurable contributions to the conservation of resources.

Waste management

Production waste is separated at KUKA and disposed of or recycled expertly by trained personnel. This also includes chemically contaminated waste (contaminated metals), which is disposed of by external service providers pursuant to the applicable legal regulations.

When packaging our products and components in Augsburg, we use eco-friendly returnable packaging instead of disposable packaging in order to reduce packaging waste. The waste generated at our major production locations in 2019 amounted to 7,478 tonnes (2018: 8,339 tonnes).

Waste generation and disposal ¹

in tonnes	2017	2018	2019
Non-hazardous waste	12,509	7,609	6,774
Hazardous waste	665	730	704
Total	13,174	8,339	7,478

¹ KUKA's largest production sites in Europe, North America and Asia (2017/2018: Augsburg, Obernburg, Bremen, Chomutov, Sibiu, Taksony, Sterling Heights, Toledo, Kunshan, Shanghai, in addition since 2019 Füzesgyarmat).

The total volume of waste fell, due particularly to the lower production volume and the ongoing sensitization of our employees to the issue of waste avoidance.

9.7%

less CO₂ emissions at our largest production locations, 2019 compared to 2018

Water management

Water consumption is measured according to the environmental management specifications. Based on these data, we develop specific saving measures that have both environmental and cost benefits. Various saving measures have been implemented in the production halls and office buildings, for example.

At our largest production locations, our water consumption was stable compared with the previous year at 12.6 m³/FTE. Total water consumption decreased to 104,217 m³ (2018: 112,872 m³) due to the lower production volume. The higher water consumption in the previous year was also due to increased construction activities. In 2019, consumption was back to the level of 2017.



Values for the new production hall in Augsburg/Germany remain under the limits specified in the Energy Saving Ordinance by

25%

Conservation of resources in production and administration

Conservation of resources plays an important role in many areas at KUKA. For example, we save considerable quantities of solvents because the robot arms are treated with an eco-friendly water-based standard paint, which contains only about 5 percent solvent. Solvent consumption thus lies below the permissible threshold value of 15 tonnes a year that would necessitate obtaining a permit.

KUKA also attaches great importance to the conservation of resources and sustainable products when catering for employees in Augsburg. At the hot beverage vending machines, our employees can make a contribution to environmental protection by using their own drinking containers. The machines recognize what containers are being used, helping us to reduce the use of disposable cups. Furthermore, straws are no longer dispensed and the plastic cutlery at our kiosks has been replaced by wooden cutlery. Employees who eat on site in our kiosks receive the food on porcelain plates rather than disposable ones. For hot lunches and salads, the takeaway packaging used is made from renewable raw materials and is biodegradable. Furthermore, the packaging for baked goods has been switched to paper bags. For environmental reasons, our caterer plans the menu using seasonal and regional foods. Wherever possible, we avoid food waste, for example by means of detailed calculations and evaluating menus and purchasing quantities.

Environmental protection in construction measures and relocations

At the end of 2019, a new production hall was built and commissioned at KUKA in Augsburg. In addition to production facilities on two floors, new office workplaces have also been created there, replacing energy-inefficient workplaces in office containers. The values for the new building are 25 percent below the limits specified in the Energy Saving Ordinance (EnEV) that is applicable in Germany. This was made possible by an efficient building envelope, the local heating supply and the connection to the new refrigeration plant. The new refrigeration plant uses a natural refrigerant, R290 (propane), which is virtually CO₂-neutral. The system also has the option of free cooling, which allows us to use the outside air for cooling purposes for as long as possible. We expect significant savings in energy and the associated costs as a result of these measures. The central management system also ensures that the building is supplied with energy according to demand.

Swisslog Healthcare USA relocated to more energy-efficient buildings in 2019, thus improving its ecological footprint. The production facility in Broomfield, Denver (USA), for example, was able to reduce its energy costs by 40 percent as a result of the relocation because the new buildings are better insulated and equipped with LED lighting. The Singapore office improved its CO₂ balance by relocating to the new CO₂-neutral building at Tampines Concourse.



Efficient products and solutions

Efficient products and solutions – low operating costs

KUKA products and systems stand for innovation and quality. We know from our own production operations that energy is a significant cost driver, both for us and our customers. In addition to functionality and procurement costs, the operating costs of a robot or system are becoming increasingly important decision-making criteria for our customers, especially in countries and regions with high energy prices.

- › Cutting costs with energy-efficient products and solutions
- › SDG spotlight
- › Improving energy efficiency through research cooperation
- › Energy efficiency in automation processes



Cutting costs with energy-efficient products and solutions

Energy-efficient robots and systems are an important lever for reducing energy consumption in our customers' applications. KUKA thus offers a wide range of energy-efficient solutions for customers to whom sustainable business practices are important from an ecological and economic standpoint. Thanks to their efficiency, KUKA robots and systems help our customers to save costs, while at the same time contributing to the conservation of resources and combating climate change. In our experience, energy costs account for about 70 percent of the total cost of ownership (TCO) for production systems, for example.

In order to further develop this approach and convince more customers to operate energy-efficiently, we have joined various industry initiatives and working groups. KUKA is addressing strategic sustainability issues in the VDMA Corporate Responsibility working group. And as a member of the International Federation of Robotics

(IFR), we are also engaged in a working group on energy efficiency and sustainability. Furthermore, KUKA is involved in euRobotics, the European Commission's public-private partnership, which will be active until 2020, and is a partner of the European Factories of the Future Research Association (EFFRA).

With technical means such as an optimized energy model in the case of newly developed robots, the upgrading of welding processes, preconfigured "ready2_use" applications and large-scale automation solutions for warehouse logistics, we have recently launched groundbreaking innovations that reduce the energy consumption of our products. In our own research and development as well as in cooperation with renowned partners from industry and research, we are continuously working on solutions with the objective of reducing consumption still further.



Thanks to their efficiency, KUKA robots and systems help our customers to save costs, while at the same time contributing to the conservation of resources and combating climate change.

SDG spotlight



In the area of products and solutions, we have identified the following opportunities and risks with regard to the achievement of SDG targets:

7.3 Doubling the rate of improvement in energy efficiency

Opportunity: the improved energy efficiency of our products means that our customers save resources and thus protect the environment.



8.4 Improving resource efficiency in production and consumption

Opportunity: with energy-efficient products and solutions, we are enhancing energy efficiency for customers.

Risk: automation solutions are energy-intensive; not improving energy efficiency would waste resources.



9.4 Modernizing and retrofitting infrastructure to make it more sustainable

Opportunity: our energy-efficient solutions enable our customers to improve their own products and sustainability performance.



9.5 Enhancing scientific research, upgrading industrial technologies and encouraging innovation

Opportunity: with our annual research and development expenditure and our participation in research collaborations, we are promoting technological advances and working on energy efficiency and sustainability.

12.2 Sustainable management and efficient use of natural resources

Opportunity: automated systems are relatively material-intensive (metals, minerals); by using resources efficiently in procurement and production, we can make a positive contribution.

Risk: if we were to relax our efficiency efforts, our products would unnecessarily consume more resources.

Improving energy efficiency through research cooperation

Within the framework of the “DC Industry 2” project, we are working together with renowned German automotive manufacturers, for example, on new energy supply concepts and new types of power system in automotive production. The objective is to develop a modified grid infrastructure based on DC supply systems. It is intended both to push ahead with the energy transition and to promote energy efficiency as well as to support the Industrie 4.0 concept. The project was initiated due to the positive results of the EU-funded research project “Automation and Robotics for European Sustainable Manufacturing” (AREUS).

The project focuses on DC power supply for an entire production shop. A total of six model systems and transfer centers are planned on the premises of various partners. The objectives of this project are:

- » a significant reduction in the energy consumption of industrial production systems in the range of more than 25 percent,
- » a considerable decrease in investment costs for the grid infrastructure,
- » energy cost-optimized operational management and preventive production control, significantly increasing availability and reducing costs.

Energy as an environmental and cost factor

All newly developed KUKA robots are equipped as standard with an optimized energy model, making it possible to determine energy consumption for a wide range of applications without the need for additional peripheral equipment. This applies to both ongoing operation and simulation. Furthermore, since 2019, newly developed robots have been certified in accordance with the AIDA measurement regulation for the energy consumption of industrial robots.

Where the upgrading of welding processes is concerned, KUKA focuses on optimizing energy consumption. In the case of the Genius friction welding machine, for example, servo-controlled hydraulic power units and other measures made it possible to reduce energy consumption by 30 percent compared to the predecessor model RS 30. In the case of MagnetArc welding machines, the new MagnetAr 620A power source results in 20 percent less energy consumption and is also 85 percent lighter.

Efficient use of resources cuts costs

With the new KR QUANTEC-2 product series, KUKA has subjected its bestseller to a rigorous appraisal and improved it for its customers. With the new series, we have been able to achieve a low TCO and thus higher efficiency. Use of low-maintenance or maintenance-free components enables longer maintenance intervals, therefore reducing downtimes. Compared with other robot models, the new KR QUANTEC-2 is “best in class”. KUKA is thus committed to an innovative servicing and maintenance concept for optimal operational efficiency throughout the life cycle. The service life of the robot arm is now up to 400,000 operating hours. Thanks to a 50 percent reduction in the main components, such as a new cable routing and energy supply concept, it has been possible to reduce downtimes and maintenance costs by up to 75 percent. As a result, the KR QUANTEC-2 is now more flexible, reliable and cost-efficient.

-30%

In the case of the Genius friction welding machine servo-controlled hydraulic power units and other measures made it possible to reduce energy consumption by 30 percent compared to the predecessor model RS 30.

Web shop for spare parts and services

With KUKA Marketplace – a web shop for spare parts and digital services for robots – we have been ensuring the long-term availability of parts since 2019, thereby extending the life cycle of our products. With the Marketplace, KUKA offers the possibility of viewing KUKA products and digital services, such as KUKA Xpert and KUKA Connect, from any place and at any time, and of purchasing them online. Product information, such as prices, technical details and stock levels, is transparently accessible for customers, partners and employees. In this way, we have significantly increased the efficiency of our order processes.

The Marketplace was initially launched in Germany in March 2019. In the future, it will be expanded to include additional products and rolled out internationally.

Energy efficiency in automation processes

KUKA offers industrial robots in numerous variants with a wide range of payload capacities and reaches. The spectrum of products also includes the appropriate robot peripheral equipment – from linear units to end effectors. Combined with cutting-edge software and innovative controllers, KUKA thus offers solutions for different manufacturing processes. This applies to maximum speeds behind the safety fence as well as to mobile solutions or direct interaction between humans and machines in human-robot collaboration (HRC).



Improving their energy efficiency enables customers not only to generate a competitive advantage, but also to achieve a significant improvement in their environmental performance.

KUKA additionally offers customers tailored complete solutions for automating manufacturing processes, covering all activities from planning and design through to the implementation of automated production systems. The 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. Here, KUKA is able to offer its customers alternative energy-efficient solutions.

Optimization of logistics centers

Additionally, KUKA implements automation solutions for forward-looking warehouses and distribution centers. As a general contractor, the Swisslog business segment offers turnkey logistics solutions, employing data-controlled and robot-based automation in particular. Swisslog has created its own energy efficiency label called GreenLog for its customers. In complex logistics applications, with many individual automated processes running in an overall system, energy consumption is a decision-making criterion.

Noticeable savings can be achieved by improving energy management for entire plants or subsystems. For example, when sequencing the arrival times of shuttles or storage and retrieval machines, the peak power demand at the start of a motion can be considerably reduced. Brake energy regeneration can also be used to reduce

power requirement peaks at the start of motion. Such improvements enable customers not only to generate a competitive advantage, but also to achieve a significant improvement in their environmental performance.

In the course of the ongoing development of products from KUKA's Swisslog business segment, steel chains have been replaced by plastic toothed belts in the CycloneCarrier shuttle and the Tornado light goods crane, for example. This allows customers to cut maintenance and service costs, dispense with lubricants and reduce noise. Furthermore, all drives have been converted from synchronous to asynchronous motors in order to reduce the use of rare earths.

The shuttle, as the most important part of the CycloneCarrier, is a sensitive electromechanical component and places special demands on secure packaging when shipping to the customer, especially over longer delivery distances. In 2019, we switched to a solution that is as effective as it is environmentally friendly: the new packaging combination of pallet and carton board is safe, reusable and also recyclable.



Sustainable supply chain

Responsible suppliers – sustainable company

At KUKA, we are fully aware that suppliers have a significant impact on a company's sustainability footprint. After all, a company's sustainability performance is only as good as that of its supply chain. By instilling a common understanding of quality and responsibility between client and contractor, and by delegating monitoring duties to the business segments and regions, we are able to shape our supply chain on the basis of sustainability criteria.

- › Responsibility in the supply chain
- › SDG spotlight
- › Local procurement



Responsibility in the supply chain

Globally oriented supply chain management that is aligned with the principles of sustainability is a key factor for success at KUKA considering the fact that qualitative, ecological and social risks taken by our suppliers can have a direct impact on our customers' satisfaction.

We are always talking to our suppliers about ways to minimize potential risks. After all, the impact that our supply chain has on our own sustainability performance grows in direct proportion to the increase in the quantity of outsourced products and services. Depending on the division, the scale of the impact felt at KUKA can be significant.

We are aware that despite all sustainability measures taken in supplier management with regard to the environment, people and the companies and divisions involved, certain risks will remain. Despite all tried-and-tested processes and precautionary measures, no management system can fully cover all risks. At KUKA, we scrutinize any areas of uncertainty with regard to the economic, ecological and social aspects of the supply chain as a matter of principle. We are committed to enforcing high standards, particularly with regard to our global growth strategy.

Ecological and social factors

At KUKA, risks brought about by the ecological or social impact of the supply chain are relatively low compared to many other sectors, because the required components originate from countries which are generally not considered to be conflict or risk regions. However, our supply chain also extends in some instances to countries in which adherence to human rights cannot be fully guaranteed. To ensure that we meet our due diligence obligations with regard to human rights in our supply chain activities, we have, for instance, made it a fundamental principle of our guidelines for personnel policy that KUKA will not accept any form of violation of basic human rights. KUKA expects all of its employees and business partners to adhere to these guidelines. Moreover, a globally applicable code of conduct for suppliers was compiled at the end of 2019.

Segment-specific responsibility

The processes and responsibilities pertaining to supply chain management are clearly defined at KUKA. By structuring the overall business so that individual business segments have their own accountable management boards that report directly to the Executive Board, it is possible to implement segment-specific requirements within the associated functions – while maintaining close coordination between the specialist departments.

In the Robotics business segment, Supply Chain Management with its Planning, Order Management, Purchasing, Logistics and Supplier Quality Management departments is responsible for the procurement of products and standard solutions. There is close coordination between this department and the corresponding functions of other segments, such as China, for example. This is the only way to systematically tap into opportunities at a global level while taking the local circumstances into account. The Robotics segment has procurement departments at all of its production locations. The ratio between strategic and operational contents may vary depending on the main business focus.

At KUKA Systems, the regional companies in Europe, North America and China use their own purchasing processes and corresponding reporting lines. In all regions, the compliance-related requirements for suppliers are firmly rooted in the Purchasing Terms and Conditions, which also relate to human rights.

At Swisslog, procurement consists of Divisional Purchasing (management and central procurement services), Production Purchasing (purchasing for in-house production) and Project Purchasing (project-specific purchasing services).

The business activities of the Systems, Robotics, Swisslog and Swisslog Healthcare divisions at the Chinese subsidiaries are bundled in the new China segment. China is thus closely intertwined structurally with the corresponding business segments (Systems, Robotics, Swisslog and Swisslog Healthcare) as required by the products and solutions to be delivered to various customer groups. There is no separate description of supplier management in this report considering the fact that the processes used by the divisions around the world are organized in a similar way.

SDG spotlight



In terms of the supply chain, we have identified the following opportunities and risks with regard to the achievement of selected SDG targets:

8.5 Full employment, humane work and fair pay

Opportunity: significant potential impact on working conditions due to the large number of suppliers.

Risk: many people would be affected if we did not attempt to have a positive influence on working conditions.

8.8 Protection of labor rights and promotion of safe and secure working environments

Risk: it is almost impossible to have full control over the supply chain when you have more than 10,000 suppliers and some of them are based in countries that are not OECD members.



10.3 Equal opportunities and combating discrimination

Opportunity and **Risk** cf. 8.5.

12.2 Sustainable management and efficient use of natural resources

Opportunity: responsible supplier management carries sustainability into all areas of value creation.

Local procurement

KUKA has more than 10,000 suppliers worldwide. However, we aim to work with regional suppliers that are based near our production plants whenever possible. For example, the proportion of local suppliers in China has grown steadily over the past few years and procurement management has been optimized with regard to quality aspects. In this way, we are helping to prevent the use of long-distance transportation services and the associated environmental pollution.

Due to the great complexity of our products, which are often subject to highly demanding technical specifications, it is rarely the case that our requirements can be met with standardized catalog goods. This is beneficial in terms of sustainability standards in the supply chain. For example, many special configurations entail a correspondingly high development effort, and the origin of the required components is already very transparent for quality reasons alone. In addition to standard industrial sheet metal, electronic parts, cables and hoses, we purchase specialized gear units, motors, castings and structural parts, for example, for the robot arms.

Auditing of suppliers at Robotics

KUKA Robotics implements a large number of measures to ensure that sustainability management extends to the supply chain. Many of our production sites have already been certified according to the international environmental management standard ISO 14001. We are always striving to gain certification for other sites, also with respect to energy and occupational safety management, if this is stipulated by national requirements. We regularly conduct recertification procedures before existing certifications expire.

Our key suppliers are encouraged to observe and heed the environmental goals stipulated in the certification. In the contractually agreed performance requirements, for instance, they are obliged to use environmentally friendly products and energy-efficient processes both for their own services and for ancillary services provided by third parties. As a rule, all major suppliers are audited prior to starting cooperation. In addition to cost and quality aspects, on-site supplier audits also help to prevent environmental risks and compliance issues. Additional supplier audits can be arranged if critical performance metrics suggest that these are necessary. Particularly in parts of Asia, where sometimes employment practices that are considered unethical by western standards cannot be completely ruled out, we take our due diligence especially seriously.

Among other things, our audits relating to environmental, labor and occupational safety standards assess how materials are stored, used and disposed of, how waste separation and cleanliness are handled and what condition the machinery is in. The focus is on avoiding risks associated with the use of so-called substances of very high concern (SVHCs) and conflict minerals in our products. These substances can be harmful to human health, have a negative impact on the environment or

encourage human rights violations. The “REACH, RoHS and Conflict Minerals coordinator”, a role established in the Quality Management function, deals extensively with the use and avoidance of SVHCs and conflict minerals in the components of our robots.

Continuous improvement of the supply chain with regard to process optimization and quality is always carried out in close cooperation with quality, environmental and energy experts. Findings from audits, such as corrective and preventive actions, are regularly analyzed and processed. The Supplier Quality Team continuously audits the supplier base pursuant to clearly defined priorities and cycles. No serious anomalies occurred in 2019.



KUKA regularly conducts recertification procedures. «

Requirements at KUKA Systems

The contracts, audit specifications and self-disclosure questionnaire for suppliers of KUKA Systems deal with issues of legal compliance, occupational health and safety, environmental protection and adherence to human rights. They require suppliers to prove that they employ internationally recognized management systems such as ISO 9001 and ISO 14001 or adhere to comparable standards.

To prevent human rights violations in the USA including child labor and forced labor, suppliers attest by signature in the KUKA Systems North America General Terms and Conditions of Purchase that they comply with the Fair Labor Standards Act. Similarly, suppliers in China undertake to adhere to the compliance specifications that are firmly anchored in the KUKA Systems China General Terms and Conditions of Purchase.

KUKA Systems in Europe conducts a risk analysis every two years for strategically important suppliers. Certificates for management systems are evaluated upon expiry. Random audits are performed in Europe every year. There were no anomalies in 2019.

Assessment procedures at Swisslog and Swisslog Healthcare

At Swisslog and Swisslog Healthcare, the Purchasing Strategy, Purchasing Governance and Supplier Management guidelines also apply in addition to KUKA Group guidelines on [quality, health, safety and environmental management](#).

Sustainability aspects relate to the Production Purchasing and Project Purchasing departments. At Swisslog, Project Purchasing is divided into three regions: Europe, Americas and APAC. At Swisslog Healthcare, it is divided into four regions: Europe, Americas, China and Rest of Asia. Suppliers can thus be evaluated and further developed according to the “local for local” approach. Among other things, the requirements on sustainability, occupational health and safety and compliance are reviewed as part of the supplier selection process. These are important factors when approving suppliers.

Suppliers are evaluated using a supplier performance rating system on a quarterly basis or upon completion of a project, as appropriate. There is also a procedure for supplier audits and, specifically in the case of Swisslog Healthcare, there is a procedure for supplier quality management. In 2019, a total of 25 supplier audits were carried out at Swisslog. Swisslog Healthcare also audited its key suppliers in 2019. There were no significant anomalies.



We follow the “local for local” approach.



Responsible employer

Developing employees – securing the future

As an employer in a future-oriented sector, KUKA has its finger on the pulse of time. Our working environment is shaped by the expectations of our customers with regard to sustainability, efficiency and cost aspects, which we must address and support by means of innovative human resources management. As a company in a state of continuous change, our corporate values, quality-driven training and education and our commitment to diversity, health and safety at work are essential constants.

- › Responsibility as an employer
- › SDG spotlight
- › Employees for future-oriented topics
- › Innovative vocational training
- › Leadership and values
- › Diversity as a success factor
- › Safe working environment



Responsibility as an employer

KUKA is shaping the workplace of the future. With our technologies, we have a formative influence on many different sectors. Just like our customers, we also have to address the challenges of digitalization. We are continually advancing digital processes and preparing our employees accordingly through training and continuing education. Various measures concerning human resources are designed to secure our long-term viability as an automation specialist.

Challenging projects, agile teams and an international setting offer plenty of room for shaping these future topics and people's personal careers at KUKA. Our success is founded upon productive and motivated employees. They are key to dealing with the changes our customers experience and to opening up new markets for robot-based automation.

KUKA has grown immensely in recent years, both globally and at our home base in Augsburg. As at the end of 2019, we were responsible for more than 14,000 employees worldwide. As part of our new location concept, we have invested in new office space and a new production hall to create a pleasant working environment for our employees.

Human resources management

The Corporate Human Resources (CHR) department answers directly to the Chief Executive Officer and is responsible for all strategic HR processes worldwide. At a regional level, we control these processes via hubs in the regions of Asia/Pacific (APAC), the Americas, Europe/Middle East/Africa (EMEA) and Germany/Austria/Switzerland (DACH). They are responsible for the implementation of standards and for harmonization processes within the relevant regions.

The interests of our employees are safeguarded by means of a number of contracts and guidelines: in Germany, for example, through collective bargaining agreements, local works agreements and the so-called "delegation of entrepreneurial duties". We do not collect data regarding the percentage of employees covered by collective bargaining agreements, nor do we intend to do so in the future, as the cost of obtaining such information would be out of all proportion to its value.

Moreover, the company has its own target agreements and working time regulations, [Guidelines for Personnel Policy and for Quality, Health, Safety and Environmental Management](#). Our Integrated Management System (IMS) describes and governs principles, organizational structures, tasks, processes and responsibilities.



KUKA is a signatory to the "Diversity Charter".

Broad support

KUKA is striving to further improve its attractiveness as an employer. This includes a high-level training and continuing education package, diversity and equal opportunity, measures to reconcile work and family life, high occupational health and safety standards, and health and sports offerings. Diversity within the company is governed, among other things, by the Group guideline "Principles of cooperation within KUKA Group" as part of the [Corporate Compliance Manual](#). In Germany, KUKA is also a signatory to the ["Diversity Charter"](#) and is thus publicly professing to the company's commitment to diversity and a prejudice-free work environment.

KUKA is measuring the success of these measures based on the applications we receive, especially for key and critical positions, through employee satisfaction surveys as well as our score in various employer rankings.

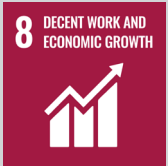
SDG spotlight



With regard to employees, we have identified the following opportunities and risks with regard to the achievement of SDG targets:

4.3 Equal access to affordable vocational and tertiary education

Opportunity: as a training company, and due to the complexity of our products, the subject of training and education is a high priority at KUKA. In this way we qualify people for future professions.



8.2 Diversification, innovation and improvement of economic productivity

Opportunity: diversification and innovation can increase our economic productivity and thus contribute to improving the economic situation.



8.5 Full employment and decent work with equal pay for work of equal value

Opportunity: as a major employer in our respective regions, we ensure employment, good working conditions and equal pay. Progress in automation in conjunction with our products and solutions can create new jobs.

Risk: if we were to allow inhumane working conditions and unequal pay, we would risk our reputation and would not be able to meet the standards we set ourselves. Due to the automation associated with our products, occupational profiles are changing and jobs may be eliminated.

8.7 Abolition of modern slavery, human trafficking and child labor

Risk: despite the code of conduct, there might be gaps in controls that could damage our reputation.

8.8 Protection of labor rights and promotion of safe and secure working environments

Risk: in the event of inadequate occupational safety measures, employees or service providers could come to harm in the company.

10.3 Ensuring equal opportunities and eliminating discrimination

Opportunity: through specific guidelines, codes of conduct, etc., the issues are securely anchored at KUKA, and reporting and complaint mechanisms allow violations to be pursued.

Risk: in the event of a lack of measures or slow investigation of suspected violations, there is a risk of negative developments.

Employees for future-oriented topics

Our success is founded on dedicated and creative employees. They work on challenging projects in an international setting that gives them plenty of room for shaping these future topics and their personal careers at KUKA.

As an integrated and global solution provider, KUKA is working on new concepts to further develop the in-house working environment. We are continually advancing digital processes and training our employees accordingly.

These change processes were part of our “Power ON” program. Various projects have so far been implemented in the context of this program, aimed at making the company fit for the requirements of the digital age. As a result, processes, data and the IT landscape are being improved worldwide and employees are being networked, thereby enhancing efficiency. Productive and motivated employees are key, as they enable us to respond to changes in established customer markets and open up new markets for automation. This is how we aim to maintain and further expand our technological leadership in a highly dynamic market environment.



KUKA’s family-friendly HR policy has been recognized with the “berufundfamilie” (work/life balance) audit seal of approval since 2010.

Employees by age group and gender¹

	2018	2019
Under 35 years old	5,602	5,442
36 to 55 years old	6,827	6,707
Over 56 years old	1,821	1,906
Total	14,250	14,055
Female	2,782	2,679
Male	11,468	11,376

¹ Group-wide, January 1 – December 31. Active personnel excluding casual workers, student trainees, apprentices, interns, dormant jobs and employees exempted from normal duties.

Benefits for our employees

At many locations, KUKA offers employees flexible working times in order to better combine work and private life. For example, our employees at the German sites may work part-time, use flextime arrangements or work from home (teleworking). Teleworking opportunities are also offered in France and, since 2019, in Spain. At our headquarters in Augsburg, the non-profit association Orange Care e. V. founded by KUKA employees offers a daycare center with a capacity for 30 children. Vacation childcare and youth programs and services such as a weekly laundry service are also available to KUKA employees in Augsburg. KUKA’s family-friendly HR policy has been recognized with the “berufundfamilie” (work/life balance) audit seal of approval since 2010.

KUKA attaches great importance to promoting a good working environment and supports employees with a variety of sports activities. In Germany, this includes participation in the Augsburg Corporate Challenge Run, the Obernburg Roman Run and the city cycling event. Additionally, regular yoga and taekwondo courses are open to all employees, as well as various sports groups founded on the company’s own initiative, some of which are financially supported by KUKA. In the USA, KUKA offers employees a health and welfare program that rewards them for their health awareness, health engagement and healthy lifestyle choices. Participating employees can also receive subsidies for preventative health care. Joint employee retention events, such as communal leisure and sports activities, are organized at our Asian and Australian locations. In the USA, KUKA supports children of staff and awards college scholarships each year. The selection is based on their academic and extracurricular performance. In 2019, 23 children received a scholarship. This was the highest number of scholarships ever awarded. In addition, KUKA USA organizes various leisure activities. In the 2019 financial year, employees had the opportunity to participate in the family picnic, bowling, baseball, yoga, biking events together with their families.

Employees in the USA are also allowed to donate their vacation time to colleagues in need. Over the last few years, the employees have donated more than 1,300 hours to their colleagues.

In the Asia/Pacific region (APAC), KUKA offers country-specific benefits that go beyond the legal requirements. These include annual health checks, allowances for dental and ophthalmological treatment, travel insurance and additional vacation entitlements.

Employees by region and employee fluctuation ¹

	2018	2019
Europe/Middle East/Africa (EMEA)	9,357	8,999
America	2,722	2,935
Asia/Pacific (APAC)	2,171	2,121
Total	14,250	14,055
New hires	2,395	1,710
Employee departures	2,222	2,110

¹ Group-wide, January 1 – December 31. Active personnel excluding casual workers, student trainees, apprentices, interns, dormant jobs and employees exempted from normal duties.

Increasing employer attractiveness

KUKA is striving to further improve its attractiveness as an employer. Success is measured on the basis of incoming applications, especially for key and critical positions. External benchmark studies have also given us good scores. In the Trendence Graduate Barometer, which is based on a survey conducted among pupils, students and young professionals on who their preferred employer is, KUKA achieved 23rd place in engineering and 52nd place in IT. In the Young Professionals survey, KUKA ranked among the top 10 employers for mechanical engineering. The number of applications at our largest German sites was around 10,000 in 2019 (2018: 17,000).

Swisslog’s employer branding initiative, launched in 2018, serves to retain talent within the company, but also to attract talented new employees by raising awareness. Use of social media channels was intensified in 2019 and a strategy was developed for actively recruiting new employees.

Job cuts due to economic challenges

The sharp fall in the number of applications is primarily attributable to the fact that KUKA has advertised fewer positions since the start of the year due to the hiring freeze.

Although there is still a trend towards the automation of industrial processes, global uncertainties and the current difficult situation of the world economy have led many customers to be cautious in their investment activities. This also affects the largest robotics markets such as the automotive and electronics industries. Contrary to the forecasts, the Chinese market also declined in 2018 and in the first half of 2019.

In order to ensure that the company remains future-proof in the long term and to guide it onto a sustainable, profitable growth course despite these economic uncertainties, KUKA implemented efficiency measures early on in 2019. In addition to focused investments in research and development with shorter development cycles and an even more customer-centric organizational structure, the efficiency program also includes staff cuts.

Employees were informed at an early stage and have been kept up to date of further developments. Around 350 full-time positions at the Augsburg location, mainly in the so-called indirect departments such as Administration, Purchasing, Sales and Project Management, were cut in the course of this process. In this regard, management worked closely with the employee representatives to develop a socially acceptable concept. The measures adopted by KUKA at the headquarters in Augsburg will serve to preserve jobs in the long term.

Additionally, reorientation with structural changes was required in one subdivision, which affected part of the workforce in Augsburg and Obernburg. This restructuring involves the loss of up to 255 further jobs. Here, too, employees were informed at an early stage, and management is working with employee representatives to find fair solutions for all concerned. The objective is for the subdivision to operate with a simpler structure, improving its performance, making it more competitive and day-to-day operations more efficient once again.

Innovative vocational training

Training and continuing education in the fields of robotics and automation turn junior KUKA talent and employees into responsible participants in shaping Industrie 4.0. Professional training is offered at the German sites in Augsburg, Obernburg and Bremen. The Group offers apprenticeships ranging from technical professions such as industrial mechanic, lathe/milling machine operator, mechatronics technician, electronics technician for automation technology, warehouse logistics specialist and specialist for forwarding and logistics services to the commercial sector with occupations such as industrial clerk, IT specialist and technical product designer. KUKA apprentice graduates are consistently top of the class at vocational schools and at Chamber of Industry and Commerce final examinations.

New technologies and future-oriented topics can be quickly implemented in our own production operations with our qualified specialist personnel.



KUKA trains according to demand. On completion of their training, our apprentices are qualified specialists immediately ready for their jobs and with whom future projects and new technologies can be quickly implemented.

At KUKA College, KUKA also trains “robot trainers” who in turn instruct customers on handling robots. The prospective trainers are instructed in so-called “Train the Trainer” seminars. After a training period of up to three years, the trainers are endowed with a broad range of technical know-how for maintaining and programming the robots as well as teaching skills for the transfer of knowledge.

When it comes to the professional training of young people, KUKA offers apprentices not only specialist know-how, but also an opportunity to learn in an intercultural setting and to think and act globally on a Group-wide scale. We attach great importance to familiarizing apprentices with the international strategy of the Group at an early stage. They are given an opportunity to gain experience abroad at other company locations each year, such as in China and the USA.

Attractive offers together with external partners

In addition to the traditional apprenticeships, KUKA offers a dual, training-integrated degree course at the University of Augsburg with the aim of attaining 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.

With regard to continuing education in Germany, KUKA cooperates with renowned universities such as the Technical University of Munich. We also work together with universities, such as Aschaffenburg University of Applied Sciences and the universities in Augsburg and Kempten, in various international research and development projects. KUKA has been a practical partner in the Finance & Information Management (FIM) program since 2017. The Master’s program is part of the Elite Network Bavaria and is offered jointly by the Universities of Augsburg, Bayreuth and the Technical University of Munich. It combines computer science, business informatics, operations research and financial mathematics. As a practice partner, KUKA is not only involved in the selection process of the students, but the company also offers individual, practice-oriented research projects, mentoring and internships.

Collaborating with educational institutions is important to KUKA. Every year, KUKA is involved in numerous university recruiting fairs and makes many trade fair appearances, such as at the “Fit for Job” career fair in Augsburg or the “konaktiva” student fair in Darmstadt. KUKA also participated in the Job Shuttle of “Wirtschaftsjunioren Augsburg” (part of the Junior Chamber International network). In addition to around 50 company tours for students annually, KUKA also offers internships and support with theses – around 250 per year. We organize events in our company, such as robot courses and practice days for school classes, but also events in schools, such as a career information day or applicant training. Thanks in part to the “Fair Company” seal, KUKA enjoys a good reputation among interns.

In 2019, at the Augsburg location alone, KUKA trained around 200 apprentices and dual degree students. Throughout Germany, the total was around 260. This number also includes the apprentices of our external partners. KUKA offers bookable training modules for these partners. In addition, KUKA employed around 160 interns and authors of theses and provided around 130 work experience placements in the year under review.

Continuing education in many areas

As part of our continuing education programs at KUKA Academy, we accompany and support KUKA employees in their personal and professional development. Our diverse range of continuing education courses includes standardized seminars such as IT training and language courses as well as special technical training for a wide variety of areas in the company. Seminars to promote personal and social skills, in particular communication and intercultural training, as well as global leadership circles complement our continuing education measures which we offer internationally, taking decentralized requirements into account.

The first global trainee program for logistics automation in the field of software development was launched in August 2019. The 23 participants are being systematically trained for these key functions of the future. The next trainee program in the field of controls engineering already began in January 2020.

In Germany, 3,636 employees took advantage of 298 in-house continuing education events in 2019, resulting in a total of 2,795 participant days. In addition to that, 169 persons took part in 14 workshops within our global leadership programs.

Swisslog Healthcare in the USA also places a particular focus on continuing education. The Automation Academy there has a “Solutions Experience” facility, consisting of hardware, software applications and analytics, which facilitates training, continuing education and detailed evaluation. The training rooms provide an attractive environment that is also open to customers, field technicians, service and support staff.



employees took advantage of 298 in-house continuing education events in Germany

Leadership and values

The high level of commitment, engagement and innovation of KUKA employees is firmly anchored in our leadership culture. Employees are united by a common understanding of values, principles and corporate culture, and we place great importance on our managers serving as an example in this respect. Managers thus have great responsibility and influence corporate culture and in-house interaction to a large extent.



114

employees in the
global talent pool

The most important principles (“Leadership Behavior”) are also part of the performance management for the executive management team, with the expectation that they will model this code of conduct. The values thus have a high level of visibility and form the basis for the global talent management system, which was established in 2019. Around 114 employees were added to the global talent pool as part of a structured identification process. Individual development plans are concluded with them and specific measures for personal and professional skills development are agreed. In addition to employee retention, we also use this as a basis for succession planning for key positions in the company.

Worldwide objective

KUKA’s values and principles are also part of the internal management development program, which is designed to further consolidate a common understanding of them worldwide. The continuous exchange of ideas across national borders is an important aspect of our leadership culture. In addition to regular management calls, at least one global management meeting is held each year, at which all KUKA managers exchange experiences and develop concepts together.

In 2019, a Global Exchange Program was established to promote intercultural exchange and offer the opportunity to work on projects on site. The program enables employees to spend a period of between three and six months abroad, subject to the existence of concrete project ideas. It applies to an exchange between Germany and China and between the USA and China. The project ideas are expected to contribute to the corporate strategy and are examined by a commission consisting of representatives from the home country and the host country.

Living values at Swisslog Healthcare

Due to their specific field of business, certain company values and the way they are lived out may differ in individual KUKA business segments. At Swisslog Healthcare in the USA, for example, commitment, clarity, competence and collaboration are considered to be the four core values. As elsewhere in the KUKA world, managers are required to set an example regarding these values and to explicitly encourage their employees to participate in forums where the values are communicated and put into practice.

Diversity as a success factor

Benefiting from and furthering the diversity of our employees is an important cornerstone of our business success. It is a source of creativity and innovation within the company. KUKA benefits from different experiences and talents. That is why it is also part of our corporate culture to live and promote diversity. The appreciation of our diversity has a positive effect on KUKA as a company, on how we deal with our customers and on our role in society.

The employees at KUKA are valued regardless of their origin, gender, age, disability, religious views or sexual orientation. Our aim is to create a work environment that is characterized by acceptance and tolerance and is free of prejudice. Equality also means that our compensation system makes no distinction between men and women, with employees being paid based solely on their performance and expertise.

Anchored in a Group guideline

As a signatory to the Diversity Charter, KUKA has also anchored the topic within the structure of the company. Diversity and appreciation are included in the Group guideline “Principles of cooperation within the KUKA Group” as part of the Corporate Compliance Manual. Diversity aspects are taken into account when new guidelines and processes are created. A globally valid diversity guideline is in the planning stage and scheduled to be adopted in 2020. The relevant issues are coordinated by a diversity manager in the Transformation & People Development team of the Corporate Human Resources department.

On the occasion of the 7th German Diversity Day on May 28, 2019, KUKA set up a new intranet page with detailed information about diversity management and promoted it in a communication campaign. In addition, two in-house promotions were organized: a poster illustrated how diversity drives KUKA forward (#diversity_drives KUKA). The poster was displayed extensively at the locations. Furthermore, there was a globally available diversity video in which employees from all over the world made short personal statements in their native language (with English subtitles) on the topics of the campaign.



More female employees

KUKA is working on further increasing the number of women in the workforce and in leadership positions.

As of December 31, 2019, the proportion of women on the Executive Board and Management Boards of the three German companies was cumulatively 0 percent (2018: 14 percent). The first management level below that had 16 percent women for all three companies (2018: 18 percent), and the second level of management a cumulative 15 percent (2018: 10 percent). The general proportion of women in the workforce in these three companies was 18 percent as of the reporting date (2018: 18 percent).

Worldwide, the general share of women in KUKA Group was 19 percent in 2019 (2018: 20 percent). Globally, for the first management level below the Executive Board and Management Boards the share is 19 percent (2018: 21 percent) and at the second level it is 17 percent (2018: 19 percent). The share of female apprentices for industrial and technical occupations at KUKA dropped to 13 percent in 2019 (2018: 17 percent).

Overall, we had fewer applicants than in the previous year. With our annual events such as participation in Girls' Day and with work experience placements for girls, practical days, robot days and our cooperation with girls' schools, our intention is to appeal to more female students in order to increase their share once again.

Woman power in orangeWIN

The internal women's network orangeWIN has the aim of promoting women in the company and identifying female talent. Events in various formats, for example business lunches on various inter-departmental topics were held at headquarters at four to six-week intervals during the reporting year. In addition an exchange of information on specialist topics, these events also provided an opportunity to network. Furthermore, six-time female boxing world champion Nikki Adler gave a keynote speech for all employees on how to discover "the champion within". KUKA CEO Peter Mohnen became the patron of orangeWIN in 2019.

The women's network orangeWIN organized eleven events with around 200 participants in the 2019 reporting year. The in-house mentoring program organized by orangeWIN facilitates a regular exchange of experiences and the targeted further development of individual skills and strengths. It also supports the professional and personal development of the participating employees. In 2019, 23 tandems from different levels of the company hierarchy took part in the program (2018: 18).

A local branch of the women's network was founded in the USA on International Women's Day on March 8 with the joint definition of their vision, mission and values. Three local events were held in 2019 with a total of around 130 participants.

External networks

KUKA is also active in external networks, such as the association of women's networks "Women in Network" (WIN) in Munich and the surrounding area. This currently includes 17 companies whose representatives meet once a quarter. Moreover, KUKA is involved in a network with other Augsburg-based companies from various industries.

In addition, KUKA has been participating in the Augsburg cross-mentoring program since 2011. This program supports young managers with their professional and personal development and is designed as a company-wide cross-mentoring program. KUKA is also involved in the mentoring partnership MigraNet, which is committed to the professional integration of people with a migrant background. In 2019, three KUKA employees were involved here as mentors.

Share of women worldwide 2019

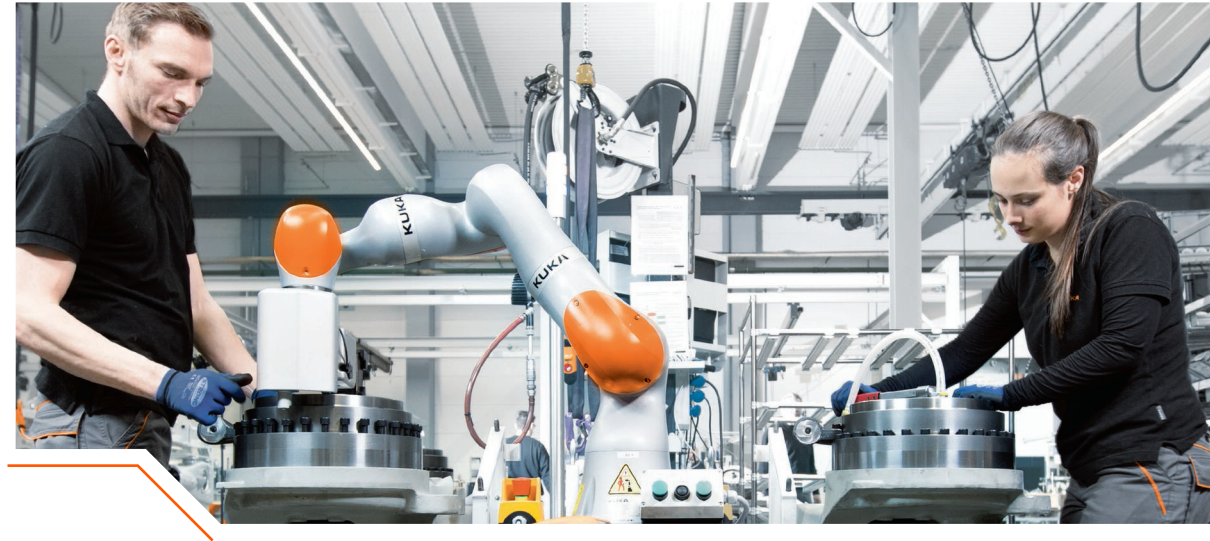


Safe working environment

Occupational health and safety are an essential requirement for ensuring that business operations run safely and efficiently in manufacturing companies like KUKA. Appropriate management systems and general awareness of occupational health and safety not only serve to protect the health of employees, but also affect the success of our company.

Occupational health and safety is therefore firmly embedded in management systems at the major locations of KUKA Group, with external certifications in some cases. In the coming years, the primary production locations are to be certified according to ISO 45001, the international standard for occupational health and safety management. In 2019, further locations of various business segments were successfully certified. The largest production location, Augsburg, is additionally certified to OHRIS (Occupational Health & Risk Management) – a Bavarian state management system.

We began to introduce Group-wide safety performance indicators (SPIs) in 2017. These include recording the LTIR (lost time injury rate). The worldwide figure was 0.7 in 2019 (2018: 0.9). There have been no fatal industrial accidents throughout the Group in the past years.



Launch of “Vision Zero”

In order to reduce the number of accidents further, the Executive Board gave the go-ahead in 2019 for the multi-year “Vision Zero” campaign – a working world with “zero” work-related accidents or damage to health. To this end, a Safety Steering Committee has been established. Participants include key decision-makers from the Robotics and Systems business segments as well as occupational health safety specialists. The committee’s task is to anchor the “Vision Zero” strategy operationally, regularly monitoring the progress of the defined priorities. An important element of “Vision Zero” consists of behavioral measures aimed at ensuring that employees consistently act in a safety-conscious manner.

Occupational health and safety measures not only protect employees’ health but also influence the company’s success.



Social engagement

Help whenever necessary – foster whenever possible

As a company operating in an innovative sector, we at KUKA also want to contribute to the sustainability of society. Empowering others is a key aspect of this. This is why we are committed to supporting children, young people and the disadvantaged in our society in a number of different ways. Recognizing the opportunities and risks for our own business, we aim to heighten the public's understanding of robotics and present possible solutions to a range of challenges confronting society today.

- › Our commitment to society
- › Support for children, young people and families
- › International engagement

Our commitment to society

KUKA is a forward-looking company with a sense of social responsibility. In the communities near our sites, we support social and charitable causes that enhance people's daily lives. The main focus of our charitable work is to support projects within the periphery of the company. First and foremost, we support projects with local community involvement or projects our employees are involved in.



Apprentices and dual degree students in 2019

Support for children, young people and families

[Orange Care e.V.](#), which was founded by KUKA employees in Augsburg, supports people in need, especially in terms of helping young people and families. The non-profit association has also sponsored a children's daycare center since 2014, which helps to improve the work-life balance for our employees.

For example, Orange Care supports the [KlinikClowns e.V.](#) of the pediatric ward in the Josefinum specialist clinic in Augsburg. The clowns visit the children's ward once a week and make everyday life in the hospital easier for the children through play and fun. This helps both the children and their parents deal with the illnesses. The activities of the two KlinikClowns in hospitals, care and therapy facilities are based on the scientific finding that laughter and humor can facilitate healing, as they have a positive effect on a person's general outlook and health.

The association also makes regular donations to the [Regens-Wagner Foundation](#) in Holzhausen, one of eight church foundations by the same name in Bavaria. The foundation offers people with disabilities broad support for school, training, employment and daycare. For example, the association supports severely disabled people through music with its involvement in the Landsberg Musical School.

In 2019, the managing board of Orange Care decided once again to support the [Christmas Wish Association for Children](#). Donations included entrance tickets to the televised singing competition "The Voice of Germany" in December, and a bicycle.

As a premium sponsor, KUKA also supports the youth research center "Herrenberg-Gäu Aerospace Lab e.V.". The aim is to provide support to young people, especially girls, with STEM subjects by mentoring them over the long term and introducing them to technical topics and research, rather than making one-off contributions. Several young people taking part in the Lab have won awards at the "Jugend forscht" (Young Researchers) competition.

International engagement

KUKA employees show their commitment to social issues beyond the scope of the Orange Care program in Germany. KUKA Systems USA has also initiated a separate non-profit organization, KUKACARES Foundation, in partnership with eight of its suppliers. The foundation raises funds through annual events such as a Wild Game Dinner and a Golf tournament. Donations are made to support individuals and families in need within our community, and for community service enhancements. Nominees are submitted through www.kukacaresfoundation.org.

In 2019, donations were made to the Veteran Employability Boot Camp, an initiative that helps war veterans get back into work, the Leadership Macomb Junior Program in which young people are trained to champion causes for the benefit of their local communities, the Bloomfield Township Police to support their self-defense course for young people, and many more.

In China, KUKA is participating in the “More than a Market” initiative, which was launched in 2015 by the German Chamber of Foreign Trade in Shanghai together with the Bertelsmann Foundation and the German Consulate General. The initiative aims to pool the social engagement of German businesses in China in order to improve the relationship between companies and the general public. KUKA donates the equivalent of 6,000 euro to charitable projects every year and supports, among other things, a soccer project in schools. In addition, we donated around 40,000 euro for various causes in Xiakun, a district of Shanghai characterized by high levels of poverty.

Bringing robotics and automation closer to the public

In November 2019, KUKA took part in [European Robotics Week](#) – initiated by the European robotics association euRobotics – for the ninth time. During this week of events, KUKA employees have the opportunity to get involved in raising awareness of robotics and automation in the general public and in allaying reservations and fears. Another aim is to arouse the interest of young people in technology and scientific subjects.

In addition to visiting schools and kindergartens, employees also held public presentations for children about robotics during Robotics Week. These were held in the Augsburg Planetarium, the KUKA Development and Technology Center in Augsburg, and in other locations. Adults were invited to attend a lecture at KUKA on the topic “The Truth about Industrie 4.0” by KUKA employee Dr. Christian Liedtke. The lecture addressed the practicality of this next stage of the Industrial Revolution, what we hope to achieve through it and what its limits are. More than 400 people attended the events.

In 2019, KUKA Systems sponsored the Bremergy Team at the University of Bremen. Every year, the students develop an electric racing car that takes part in Formula Student in the Electric vehicle class. With over 800 teams from more than 37 nations, Formula Student is one of the world’s biggest design competitions for students.

Innovation award for medical technology

The KUKA Innovation Award directs the interest of the informed public towards the topic of innovation, using examples of automation and robotics in new fields of activity. In 2019, the 20,000-euro prize, which has been awarded each year since 2014, was presented for the development of an innovative concept with KUKA hardware, namely the LBR Med, for use in hospitals and rehabilitation centers. The prize was won by a research team from the Universities of Leeds, Vanderbilt and Turin, who submitted a concept for a robot-assisted, magnetic endoscopy for painless colorectal cancer screening. Entries have been invited for the next Innovation Award in 2020, which will again center on the field of medical technology.

GRI Content Index

For the Materiality Disclosures Service, GRI Services reviewed that the GRI content index is clearly presented and the references for Disclosures 102-40 to 102-49 align with appropriate sections in the body of the report. The service was performed on the German version of the report.



GRI Standards	Page	Omissions
GRI 101: Foundation 2016		
GRI 102: General disclosures 2016		
Organisational Profile		
GRI 102-1: Name of the organisation	3	
GRI 102-2: Activities, brands, products and services	6 – 10	
GRI 102-3: Location of headquarters	6	
GRI 102-4: Location of operations	6 – 10	
GRI 102-5: Ownership and legal form	9	
GRI 102-6: Markets served	6 – 10	
GRI 102-7: Scale of the organisation	6	See Annual Report 2019 , page 66, 67
GRI 102-8: Information on employees and other Workers	50, 51	
GRI 102-9: Supply chain	44 – 46	
GRI 102-10: Significant changes to the organisation and its supply chain		See Annual Report 2019 , page 42
GRI 102-11: Precautionary Principle or approach	14, 43	
GRI 102-12: External initiatives	11, 13, 19, 38, 48	
GRI 102-13: Membership of associations	13	
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GRI 102-14: Statement from senior decision-maker	4	
GRI 102-15: Key impacts, risks, and opportunities	12 – 15, 18, 32, 44, 49	
Ethics and Integrity		
GRI 102-16: Values, principles, standards, and norms of behaviour	26, 27, 43, 48, 54	
GRI 102-17: Mechanisms for advice and concerns about ethics	27, 29	

GRI Standards	Page	Omissions
Governance		
GRI 102-18: Governance structure	11	
GRI 102-19: Delegating authority	11, 12, 26, 31, 48	
GRI 102-20: Executive-level responsibility for economic, environmental, and social topics	11 – 14, 26, 31, 48	
GRI 102-21: Consulting stakeholders on economic, environmental, and social topics	13	
GRI 102-22: Composition of the highest governance body and its committees	11	See Annual Report 2019 , page 10 ff.
GRI 102-23: Chair of the highest governance body	11	
GRI 102-24: Nominating and selecting the highest governance body	11	
GRI 102-25: Conflicts of interest		See Annual Report 2019 , page 6 ff.
GRI 102-26: Role of highest governance body in setting purpose, values, and strategy	11	
GRI 102-27: Collective knowledge of highest governance body		See Annual Report 2019 , page 11 ff.
GRI 102-28: Evaluating the highest governance body's performance		See Annual Report 2019 , page 10 ff.
GRI 102-29: Identifying and managing economic, environmental, and social impacts	14	
GRI 102-31: Review of economic, environmental, and social topics	12, 14	
GRI 102-32: Highest governance body's role in sustainability reporting	3, 12	
GRI 102-35: Remuneration policies		KUKA only reports on the remuneration of the Executive Board. Information on the remuneration of other management levels is subject to confidentiality agreements and therefore cannot be reported.
GRI 102-36: Process for determining remuneration		See Annual Report 2019 , page 15 ff.
GRI 102-37: Stakeholders' involvement in remuneration		See Annual Report 2019 , page 15 ff.
GRI 102-38: Annual total compensation ratio		KUKA only reports on the remuneration of the Executive Board. Information on the remuneration of other management levels is subject to confidentiality agreements and therefore cannot be reported.
GRI 102-39: Percentage increase in annual total compensation ratio		KUKA only reports on the remuneration of the Executive Board. Information on the remuneration of other management levels is subject to confidentiality agreements and therefore cannot be reported.

GRI Standards	Page	Omissions
Stakeholder Engagement		
GRI 102-40: List of stakeholder groups	3, 13	
GRI 102-41: Collective bargaining agreements	48	
GRI 102-42: Identifying and selecting stakeholders	13	
GRI 102-43: Approach to stakeholder engagement	13	
GRI 102-44: Key topics and concerns raised	14	We include the most important issues raised by our stakeholders in our materiality analysis.
Reporting Practice		
GRI 102-45: Entities included in the consolidated financial statements	3	
GRI 102-46: Defining report content and topic boundaries	3, 14	
GRI 102-47: List of material topics	15	
GRI 102-48: Restatements of information		There were no new formulations of information in relation to the previous year's report.
GRI 102-49: Changes in reporting		There were no significant changes in reporting.
GRI 102-50: Reporting period	3	
GRI 102-51: Date of most recent report		April 2019
GRI 102-52: Reporting cycle		yearly
GRI 102-53: Contact point for questions regarding the report	67	
GRI 102-54: Claims of reporting in accordance with the GRI Standards	3	
GRI 102-55: GRI Content index	61 – 66	
GRI 102-56: External assurance		There was no external audit of the information in this report.
Material Topics		
GRI 203: Indirect Economic Impacts 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	18 – 20	
GRI 203-2: Significant indirect economic impacts	18, 20	

GRI Standards	Page	Omissions
GRI 204: Procurement Practices 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	42 – 46	
GRI 204-1: Proportion of spending on local suppliers	44	Unfortunately, we do not include the share of expenses for local suppliers in the procurement and do not intend to do so in the future, since the cost of obtaining information is not in a reasonable relation to the value of the information.
GRI 205: Anti-corruption 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	25 – 28	
GRI 205-2: Communication and training about anti-corruption policies and procedures	27, 28	
GRI 206: Anti-competitive Behavior		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	25, 26	
GRI 206-1: Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	26	
GRI 302: Energy 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	30, 31, 33 – 38	
GRI 302-1: Energy consumption within the organisation	34	
GRI 302-5: Reductions in energy requirements of products and services	37 – 41	
GRI 303: Water 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	30, 31, 35, 36	
GRI 303-1: Water withdrawal by source	36	We do not collect information on the total volume of water withdrawn.
GRI 306: Effluents and Waste 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	30, 31, 35, 36	
GRI 306-2: Waste by type and disposal method	35	
GRI 307: Environmental Compliance 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	25, 27, 31	
GRI 307-1: Non-compliance with environmental laws and regulations		No such incidents were reported in the year under review. There were also no non-compliance lawsuits of environmental laws and regulations.

GRI Standards	Page	Omissions
GRI 308: Supplier Environmental Assessment 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	27, 42 – 46	
GRI 308-1: New suppliers that were screened using environmental criteria	45, 46	
GRI 308-2: Negative environmental impacts in the supply chain and actions taken	45, 46	
GRI 401: Employment 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	47, 48, 50, 51	
GRI 401-1: New employee hires and employee turnover	51	We do not currently collect information on new hires by age group and gender at a global level. The collection of this data at the global level is already planned.
GRI 402: Labour/Management Relations 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	48, 51	
GRI 402-1: Minimum notice periods regarding operational changes	51	KUKA complies with the applicable legal requirements with regard to notification deadlines.
GRI 403: Occupational Health and Safety 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	47, 48, 57	
GRI 403-2: Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	57	
GRI 404: Training and Education 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	19, 47, 48, 52 – 54	
GRI 404-2: Programmes for upgrading employee skills and transition assistance programmes	52, 53	
GRI 405: Diversity and Equal Opportunity 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	47, 48, 55, 56	
GRI 405-1: Diversity of governance bodies and employees	11, 50, 56	For corresponding information on the management bodies, see Annual Report 2019 , page 116, 117
GRI 407: Freedom of Association and Collective Bargaining 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	27, 42 – 46, 48	
GRI 407-1: Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk		We are not aware of any business locations where the right to freedom of association and collective bargaining could be threatened. As part of our supplier management, we review our suppliers with regard to employment and human rights issues.

GRI Standards	Page	Omissions
GRI 408: Child Labor 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	27, 42 – 46	
GRI 408-1: Operations and suppliers at significant risk for incidents of child labor	43 – 46	
GRI 409: Forced or Compulsory Labor 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	27, 42 – 46	
GRI 409-1: Operations and suppliers at significant risk for incidents of forced or compulsory labor	43 – 46	
GRI 413: Local Communities 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	59, 60	
GRI 413-1: Operations with local community engagement, impact assessments, and development programmes	59 – 60	
GRI 414: Supplier Social Assessment 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	17, 27, 42 – 46	
GRI 414-1: New suppliers that were screened using social criteria	45, 46	
GRI 416: Customer Health and Safety 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	17, 25, 28, 29	
GRI 416-2: Incidents of non-compliance concerning the health and safety impacts of products and services	28	In 2019 there were no proceedings with fines for breach of customer safety.
GRI 417: Marketing and Labelling 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	29	
GRI 417-1: Requirements for product and service information and labelling	29	
GRI 418: Customer Privacy 2016		
GRI 103: Management approach 2016 (including 103-1, 103-2, 103-3)	16, 17, 21, 27, 29	
GRI 418-1: Substantiated complaints concerning breaches of customer privacy and losses of customer data	21	

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Forward-looking statements

The Sustainability Report contains forward-looking statements on expected developments. These statements are based on current assessments and are naturally subject to risks and uncertainties. Actual results may differ from these statements.

The German version is legally binding in cases of doubt.

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