KUKA

Annual Report 2019

beyond automation

Key figures

in € millions	2018	2019	Change in %
Orders received			
Systems	959.8	858.0	–10.6
Robotics	1,196.5	1,037.1	–13.3
Swisslog	601.1	750.2	24.8
Swisslog Healthcare	234.5	251.3	7.2
China	535.9	456.4	–14.8
Group	3,305.3	3,190.7	–3.5
Sales revenues			
Systems	925.4	925.4	0.0
Robotics	1,247.3	1,159.2	–7.1
Swisslog	607.1	600.0	–1.2
Swisslog Healthcare	212.9	222.3	4.4
China	527.9	458.2	–13.2
Group	3,242.1	3,192.6	–1.5
Order backlog (Dec. 31)	**2,055.7**	**1,967.4**	**–4.3**
EBIT			
Systems	29.5	26.9	–8.8
Robotics	80.9	37.7	–53.4
Swisslog	–0.2	10.5	>100
Swisslog Healthcare	–4.7	–10.0	>–100
China	–5.4	3.6	>100
Group	34.3	47.8	39.4
EBIT in % of sales			
Systems	3.2	2.9	–30 Bp
Robotics	6.5	3.3	–320 Bp
Swisslog	0.0	1.8	180 Bp
Swisslog Healthcare	–2.2	–4.5	–230 Bp
China	–1.0	0.8	180 Bp
Group	1.1	1.5	40 Bp
Earnings after taxes	**16.6**	**17.8**	**7.2**
Financial situation			
Free cash flow	–213.7	20.7	>100
Capital employed (annual average)	1,185.0	1,374.3	16.0
ROCE	2.9	3.5	20.7
Capital expenditure	295.4	151.1	–48.8
Employees (Dec. 31)	14,235	14,014	–1.6
Net worth			
Balance sheet total	3,218.5	3,426.6	6.5
Equity	1,339.6	1,348.6	0.7
in % of balance sheet total	41.6	39.4	–5.3
Share			
Weighted average number of shares outstanding (in millions of shares)	39.8	39.8	0.0
Earnings per share (in €)	0.32	0.24	–25.0
Dividend per share (in €)	0.30	0.15 [1]	–50.0
Market capitalization (Dec. 31)	2,021	1,452	–28.2

Bp: Basis point (= 1/100 percentage point)

[1] Subject to approval by shareholders at the Annual General Meeting on June 19, 2020

KUKA at a glance

KUKA is a global automation company with sales revenues of around 3.2 billion euro and a workforce of about 14,000. As one of the world's leading suppliers of intelligent automation solutions, KUKA offers its customers a full range of products and services 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. Industrie 4.0 is bringing the digital networking of production, flexible manufacturing concepts and new business models to the fore. The aim is to support customers by providing comprehensive automation and digitization know-how in order to optimize their value creation.

Key figures 2019

Sales revenue	Orders received	Employees
€3.2 billion	€3.2 billion	14,014

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Foreword by the Executive Board

Dear Shareholders,

The past year was a turbulent one, and not only for KUKA. It was also a year of geoeconomic and political uncertainties and full of upheavals in society. A year of transformation and a year for rethinking. A public shift towards a more sustainable global society was more clearly tangible than ever before. This development is making an impact that goes far beyond political or social discussions and is meanwhile also firmly anchored in the global economy. That is a good thing, because we as a com-pany also recognize this responsibility in our dealings and are embracing this challenge with great ambition. At KUKA we are convinced: the intelligent and economical use of resources is the very essence of automation – and has shaped our business for decades. With robots, automated systems and technical solutions that are energy-efficient and simplify the life and work of our customers and their customers.

In the 2019 reporting year, we felt the effects of the global economic slowdown and in particular the reluctance in major industries, such as the automotive sector, to invest. The fact that we had to adjust our targets during the course of the year, but were still able to close the year with stable sales reve-nues of around €3.2 billion, can be regarded as a success in these difficult conditions. With the efficiency program initiated at the start of the year, we have made considerable savings and thus signifi-cantly increased profits despite a decline in orders received and a gloomy economic situation. We have managed to achieve a turnaround in free cash flow, where we were able to report a positive figure of €20.7 million for the first time following a run of three negative years in succession. We have reduced our net debt while keeping the equity ratio stable.

These successes, even in difficult times, show that a more economical and prudent course is helping us to put our Group back on the right track. What we need to do now is to set the right course for the future. That, for example, is why we already started restructuring cell production in the Robotics seg-ment in 2019. The objective is to focus our business in such a way as to ensure that we remain flexi-ble in the face of fluctuating order situations and are in a stable position for further growth over the coming years.

After all, one thing is clear: even if the current market situation is tough and our customers are delay-ing many investments, our competencies in automation continue to occupy absolute trend themes in the economy and in society – the digitalization of industry, the networking of production and supply chains, and the smart automation of work steps in more and more industries and areas of life are drivers of a transformation that we at KUKA want to help shape. Artificial intelligence and machine learning are buzzwords that are being bandied about in many places nowadays – but in our business they are becoming reality.

We see this process of global economic change not as a danger, but as an opportunity. With intelli-gent and connected automation, and with our full spectrum of products, ranging from robots, modular cells and entire systems to modern logistics solutions for e-commerce and logistics in hospitals around the world, we are sufficiently diverse and well positioned to seize this opportunity.

Peter Mohnen
CEO

Andreas Pabst
CFO

We want to be the first port of call for smart automation and, as a specialist solutions provider, to accompany our customers on their way through the transformation of the many different economic sectors.

In contrast to many competitors, KUKA offers the full range of products and services, with a combina-tion of industry- and process-specific knowledge, machines and robots, as well as digital expertise. It is precisely robotic automation that leverages the common ground between hardware and software. More and more of our value creation is shifting from the development, sales and servicing of ma-chines to digital solutions. We are not only making the right resources available for this internally, but also entering into partnerships and alliances with partners from industry and IT, without which con-nected solutions for our customers would not be possible. That is because in our digital world of work it is no longer of decisive importance who can solve everything by themselves, but who can offer smart solutions through the right agile partnerships. And who is fast and flexible enough to keep up with this rapid development and drive it forward. This is the standard we set ourselves.

That is what we and the enthusiasm of around 14,000 KUKAns around the globe stand for.

Peter Mohnen

Sincerely, Peter Mohnen

Supervisory Board report

Dear Shareholders,

The coronavirus pandemic currently spreading around the world is facing us all with an unprecedented challenge. Not only the economic impact, but also the political and social consequences cannot yet be seriously foreseen. We must assume that KUKA too will be sustainably affected by the coronavirus pandemic in the 2020 fiscal year. Be assured that the Supervisory Board, together with KUKA's Executive Board and the complete KUKA management, is cooperating very closely to mitigate the effects of the corona crisis to the greatest possible extent. The health of KUKA employees and their families has top priority and we aim to protect it as well as we can through various measures.

The 2019 fiscal year that we are reporting on here was already a challenging one for KUKA. It was characterized by a difficult geoeconomic environment, above all by the trade dispute between China and the USA, and the global discussion on climate protection and sustainability. Both topics have considerable influence on the industrial sectors that are traditionally of key importance to KUKA. KUKA was therefore faced with significant reluctance on the part of customers in the automotive industry to make investment decisions in the 2019 fiscal year. The company countered these developments with a larger cost-cutting program and the continued focus on innovative automation solutions in the general industry sector.

The Supervisory Board, also through the work of its committees, supported the company intensively during this phase of adjustment and ongoing development, thereby fulfilling its control and advisory functions. Particular attention was paid to the budget, while consultation also focused strongly on matters of strategy and new technologies. Cooperation between the Supervisory Board and the Executive Board was constructive.

The Supervisory Board performed its duties in plenary sessions, committee meetings, conference calls and through circular resolutions. Above all, the Chairman of the Supervisory Board and the chairs of its committees held regular talks with the Executive Board and were thus available as particularly trusted partners. The key performance indicators of the Group (e.g. orders received, sales revenues, EBIT, staff levels) were discussed in detail at every Supervisory Board meeting in connection with the management report of the Executive Board. Deviations of business performance from the plans and targets or from the budgets were discussed in detail in the Supervisory Board and examined on the basis of the documents submitted. The Supervisory Board was thus continuously aware of the company's economic situation.

Questions regarding Executive Board remuneration were prepared in the Personnel Committee, with subsequent decisions being made at the plenary meetings of the Supervisory Board.

Changes to the Executive Board and Supervisory Board

The Executive Board of KUKA Aktiengesellschaft currently consists of its Chairman Peter Mohnen (CEO) and Andreas Pabst (CFO). In addition, Prof. Dr. Peter Hofmann was a member of the company's Executive Board during the period from November 1, 2019 to February 20, 2020. Prof. Dr. Peter Hofmann had been appointed to the Executive Board as CTO with responsibility for technology and development. After intensive discussions, the Supervisory Board and Prof. Dr. Peter Hofmann came to the conclusion in February 2020 that Prof. Dr. Peter Hofmann's position on the Executive Board should be terminated prematurely. Prof. Dr. Peter Hofmann's appointment was terminated by mutual agreement with effect from the end of February 20, 2020.

There was no cause to alter the quota for female Executive Board members, which is currently set at 0 percent.

The Supervisory Board members representing the shareholders were elected by the Annual General Meeting on June 6, 2018. The employee representatives on the Supervisory Board were elected on April 10, 2018, in accordance with the provisions of the German Co-Determination Act (MitbestG), and with effect from the conclusion of the Annual General Meeting on June 6, 2018.

The following changes to the Supervisory Board took place in fiscal 2019:

- Mr. Hongbo (Paul) Fang resigned from the Supervisory Board as of May 31, 2019. Mr. Fang was succeeded by Dr. Chengmao Xu, who was appointed to the Supervisory Board by court order with effect from June 17, 2019.
- Mr. Alexander Tan resigned from the Supervisory Board as of December 31, 2019. As Mr. Tan's successor, Mr. Helmut Zodl was appointed to the Supervisory Board of KUKA AG by court order effective January 24, 2020.

The appointments of Dr. Chengmao Xu and Mr. Zodl are limited in time until the end of the next Annual General Meeting on June 19, 2020.

At the time the report of the Supervisory Board was submitted, the Board was thus composed of the following members: Representing the shareholders, the Supervisory Board comprises Dr. Yanmin (Andy) Gu (Chairman), Dr. Chengmao Xu, Prof. Dr. Henning Kagermann, Min (Francoise) Liu, Dr. Myriam Meyer and Helmut Zodl. As employee representatives, the Supervisory Board consists of Michael Leppek (Deputy Chairman), Wilfried Eberhardt, Manfred Hüttenhofer, Armin Kolb, Carola Leitmeir and Tanja Smolenski.

With four females out of a total of twelve acting members, the proportion of women on the Supervisory Board amounted to 30 percent at the end of the year under review.

Dr. Yanmin (Andy) Gu
Chairman of the Supervisory Board

Meetings of the Supervisory Board and its committees

The Supervisory Board held nine plenary sessions. It organized four telephone conferences and reached two resolutions passed by written circulatory procedure.

The first meeting of the Supervisory Board was held by telephone on January 28, 2019; it dealt with the appointments and employment contracts of Peter Mohnen and Andreas Pabst.

Another telephone conference was held on February 13, 2019, at which the current business development was discussed and the Group's structuring on the basis of the KUKA Business Organization (KBO) was decided.

The first ordinary meeting took place in Augsburg on March 27, 2019. This meeting addressed the 2018 annual financial statements prepared for KUKA Aktiengesellschaft and the Group. In its role as auditor, KPMG presented a report and the Chairman of the Audit Committee made a statement. Both sets of annual accounts were approved by the Supervisory Board, which meant that the annual financial statements of KUKA Aktiengesellschaft were thereby adopted. The Supervisory Board also had to reach a decision on the proposal regarding appropriation of the 2018 balance sheet profit and supported a dividend payment of €0.30 per share. The Supervisory Board approved both the Corporate Governance report and the Supervisory Board report for 2018. A further topic dealt with by the Supervisory Board was the sustainability report pursuant to sections 315b, 315c, 289c of the German Commercial Code (HGB). The Supervisory Board reviewed this report – as the Audit Committee had done in advance – and raised no objections to it. The Board then decided on proposed resolutions for the Annual General Meeting planned for May 29, 2019. The Supervisory Board also dealt with fundamental issues of future software development and the quality of project management in the area of systems engineering. Lastly, issues relating to Executive Board compensation, such as the extent to which the targets stipulated for the Executive Board members for 2018 had been achieved and the 2018 success factor for the variable bonus relating to the company's financial targets, were also on the agenda. In addition, the success factor for settlement of the phantom share program 2016 – 2018 was determined and the KUKA Added Value Incentive ("KAVI") 2019 – 2021 was discussed. The Supervisory Board also decided that a Chief Technology Officer should be sought to strengthen the Executive Board.

The Supervisory Board met before and after the Annual General Meeting held on May 29, 2019. Beforehand, the Supervisory Board prepared for the Annual General Meeting. After the Annual General Meeting, the 2018 ICS report was submitted and a final decision was made regarding the introduction of the newly devised KUKA Added Value Incentive Plan ("KAVI") 2019 – 2021, which is to be granted to the members of the Executive Board as a long-term variable component of their remuneration (details of this are presented in the compensation report on page 15). As part of regular professional training, the attorneys Dr. Christian Vogel and Dr. Dominik Hess held a lecture on current legal developments in stock corporation law.

On July 29, 2019 and August 9, 2019, two extraordinary telephone conferences were held to decide on the selection of the new Executive Board member for technology and development, and finally on the employment and appointment of Prof. Dr. Peter Hofmann as Chief Technology Officer and member of the Executive Board. Another ordinary meeting took place in Augsburg on September 24, 2019. Besides the market and business development in Q2/2019, restructuring was a further topic. An update was also presented on the joint ventures with Midea. At the end of the meeting, decisions were made on contractual matters relating to the Executive Board.

The last ordinary meeting of the Supervisory Board was convened in Shunde on November 29, 2019. The 2020 budget and the 2022 medium-term planning were discussed and approved. The Board was also updated on the restructuring. This was followed by the annual reports of the Personnel Committee, the Audit Committee and the Strategy and Technology Committee. Furthermore, under the agenda item of Executive Board matters, the personal and company targets of the Executive Board members for the 2020 fiscal year were resolved and the KAVI 2020 – 2022 was adopted.

All members of the Supervisory Board, except Mr. Hongbo (Paul) Fang, participated in more than half of the plenary and committee meetings in the year under review (German Corporate Governance Code, section 5.4.7). Unless indicated otherwise, the Supervisory Board met in the presence of the Executive Board except when matters of its remuneration were on the agenda (German Corporate Governance Code, section 3.6, para. 2).

Further aspects of corporate governance can be found in the report of the same name which forms part of the annual report.

The Supervisory Board has the following committees: Personnel Committee (chaired by Dr. Yanmin (Andy) Gu), Audit Committee (chaired by Mr. Alexander Tan until December 31, 2019 and by Mr. Helmut Zodl from January 29, 2020), Strategy and Technology Committee (chaired by Prof. Dr. Henning Kagermann), Mediation Committee pursuant to section 27 para. 3 of the German Co-Determination Act (chaired by Dr. Yanmin (Andy) Gu). The Nomination Committee has also been established in accordance with section 5.3.3 of the German Corporate Governance Code.

The Personnel Committee met seven times during the year under review. It addressed both the remuneration of the Executive Board and the composition and expansion of the Executive Board. At one meeting, for example, the candidates for the CTO position were selected and the recruitment of Prof. Dr. Peter Hofmann was discussed.

The Audit Committee held six meetings in the 2019 fiscal year. The financial statements of KUKA Group and KUKA AG were discussed regularly. Furthermore, the audit plan for 2018, the current risk report and a regular report on the progress of the internal audits were addressed. The company's Chief Compliance Officer also reported to the Audit Committee on a regular basis.

The Strategy and Technology Committee convened four times in the 2019 fiscal year. In addition to consultations on Group strategy, discussions covered the new organizational structure of Robotics and Systems, further developments of industrial robots and control software, the Quantec-2 market launch and Visual Components.

On January 29, 2020 the Supervisory Board and subsequent to it the Audit Committee held extraordinary meetings. The Supervisory Board has appointed Mr. Helmut Zodl as a member of the Audit Committee. Following that decision, Mr. Helmut Zodl was elected by the Audit Committee as Chairman.

It should also be mentioned that the Personnel Committee and subsequently the entire Supervisory Board convened at short notice on February 19, 2020 for extraordinary telephone conferences. The subject of these meetings of the Personnel Committee and the Supervisory Board was the premature termination of the appointment of Prof. Dr. Peter Hofmann as a member of the Executive Board and the premature termination of his employment contract.

On February 19, 2020, the Supervisory Board resolved – following the Personnel Committee's recommendation – to terminate Prof. Dr. Hofmann's appointment to the Executive Board prematurely and by mutual consent.

There was no occasion to convene the Nomination and Mediation Committees.

Independence and conflicts of interest, Declaration of Compliance

The Supervisory Board members Dr. Yanmin (Andy) Gu, Ms. Min (Francoise) Liu, Dr. Chengmao Xu and Mr. Helmut Zodl have employment contracts with Midea Group, which holds a 94.5 percent stake in KUKA. Dr. Yanmin (Andy) Gu also holds an executive position within this group.

The Supervisory Board and the Executive Board submitted identically worded declarations in accordance with section 161 of the German Stock Corporation Act (AktG). The annual declarations were made first by the Executive Board on January 28, 2019 and then by the Supervisory Board on February 15, 2019. The Declarations of Compliance were made permanently available to shareholders on the company's website.

Work with the auditors

The annual financial statements of KUKA Aktiengesellschaft as at December 31, 2019 and the Group financial statements as at December 31, 2019, as well as the consolidated management report for KUKA Aktiengesellschaft and KUKA Group, including the bookkeeping, were audited by auditors KPMG AG, Wirtschaftsprüfungsgesellschaft, Berlin, which issued an unqualified audit opinion in each case on March 11, 2020.

The auditors also reviewed the monitoring system as per section 91 para. 2 of the German Stock Corporation Act (AktG), the purpose of which is the early detection of developments that could threaten the company's existence. KUKA Aktiengesellschaft's consolidated financial statements were prepared in accordance with section 315e para. 1 of the German Commercial Code (HGB) based on the International Accounting Standards (IFRS) as adopted by the European Union.

The Supervisory Board's Audit Committee appointed the external auditors, KPMG, as per the resolution at the Annual General Meeting of May 29, 2019. During the course of appointing the auditors of the financial statements of the company and the Group, the chair of the Audit Committee and the Chairman of the Supervisory Board conducted a review with the auditors regarding key audit issues, scope and fees. The auditors agreed to immediately inform the chair of the Audit Committee about any disqualification or bias issues encountered during the audit, provided such disqualification or bias issues could not immediately be resolved. The auditors also agreed to report on an ongoing basis during the audit all material findings and developments arising during the audit that were within the scope of the Supervisory Board's responsibilities. Furthermore, the auditors were instructed to inform the Supervisory Board, or note in the audit report, if information was encountered during the audit that was contrary to the declarations released by the Executive Board and Supervisory Board as per section 161 para. 1 sentence 1 of the German Stock Corporation Act (AktG).

Finally, the Audit Committee obtained the arm's length declaration of the auditors in accordance with section 7.2.1 para. 1 of the GCGC and monitored the auditors' independence.

As was the case in previous years – always in respect of different matters – focal points were defined for the audit in the 2019 fiscal year: namely the capitalization of internally generated intangible assets (especially software); recognition, measurement and disclosure of finance leases in which KUKA is the lessor; conversion to IFRS 9; segment reporting and allocation of goodwill to the new cash generating units, recognition and measurement of restructuring provisions; Group tax rate; scope of consolidation; valuation of investments; dependency report.

In a joint meeting with the auditors on March 11, 2020, the Audit Committee reviewed the two sets of financial statements for fiscal 2019, taking into consideration the auditors' reports. The Executive Board and the auditors presented the highlights of the financial reports to the committee. The Audit Committee members reviewed, discussed and checked in detail the documentation relating to the financial statements and discussed the audit report in depth with the auditors. The auditors answered the questions posed by the Audit Committee members. The Audit Committee reported to the Supervisory Board on the results of its discussions during the Board's meeting on March 25, 2020 and recommended that the Board approve KUKA Aktiengesellschaft's annual financial statements and KUKA Group's consolidated annual financial statements for 2019.

The full Supervisory Board reviewed the draft annual financial statements and the Executive Board's recommendation on appropriation of net income on March 25, 2020.

The auditors, KPMG, attended the Supervisory Board meeting in order to report on material findings in the audit and to provide additional information. All members of the Supervisory Board were in possession of the audit reports provided by the auditors.

KPMG explained in detail the financial position and performance of the company and the Group. The auditors also reported that there are no material weaknesses in the internal controlling of the accounting system or the risk early detection system. The Board and the auditors jointly reviewed and discussed the financial statements and KPMG answered all questions posed by the Audit Committee. The audits of the KUKA Aktiengesellschaft and KUKA Group annual financial statements for 2019 were thus fully comprehensible.

Furthermore, in the meeting on March 25, 2020, a sustainability report for 2018 prepared for KUKA Group pursuant to sections 315b, 315c, 289c of the German Commercial Code (HGB) was reviewed for the second time by the plenum following discussion by the Audit Committee. There were no objections.

Finally, in view of Midea's shareholder status (94.55 percent), the Supervisory Board had to address the dependency report for 2019 prepared by the Executive Board pursuant to section 312 of the German Stock Corporation Act (AktG).

This report was also reviewed by KPMG in its role as auditor. Following preparatory discussion by the Audit Committee, the Supervisory Board conducted a further review. All reviews confirmed the Executive Board's final declaration that, with regard to the business relationships of KUKA Group with Midea companies in the 2019 fiscal year, appropriate compensation was received and KUKA companies did not suffer any disadvantages therefrom.

Adoption of 2019 financial statements

After completing its own review of the financial statements for 2019 for KUKA Aktiengesellschaft and KUKA Group, and with full knowledge and consideration of the Audit Committee report, the auditors' reports and the explanations provided, the Supervisory Board raised no objections to the results and concurred with the auditors' findings at its meeting on March 25, 2020. In the opinion of the Supervisory Board, the auditors' reports comply with the legal requirements stipulated in sections 317 and 321 of the German Commercial Code (HGB).

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

In its financial statements meeting on March 25, 2020, the Supervisory Board therefore approved KUKA Aktiengesellschaft's financial statements for fiscal 2019 as prepared by the Executive Board. The annual financial statements are thereby adopted.

The Supervisory Board also approved KUKA Aktiengesellschaft's consolidated financial statements and the Corporate Governance report for the 2019 fiscal year as prepared by the Executive Board.

Initially, the Executive Board recommended payment of a dividend of €0.30 per no-par-value share with dividend entitlement from the balance sheet profit. At its meeting on March 25, 2020, the Supervisory Board, under the impression of the corona crisis and after detailed discussion, approved a proposal for a dividend of €0.15 per entitled no-par-value share, with the remaining amount being carried forward to new account. The Executive Board acceded to this proposal of the Supervisory Board on the same day.

Thanks to the staff

For KUKA, 2019 was a challenging year on account of the general economic environment. Despite these challenges, a dividend can again be paid for this year. This is attributable not just to the Executive Board, but to all KUKA Group employees.

The Supervisory Board is therefore especially grateful to all staff of KUKA companies for their commitment. The employees worked hard for KUKA again in 2019, preparing the company for the future. However, the Supervisory Board also extends its thanks to the members of the Executive Board, the CEOs of the Group companies and the employee representatives. Through their efforts, all of them have served the company and the welfare of its customers and shareholders in an impressive manner.

For the current fiscal year 2020, the Supervisory Board wishes all KUKA employees good health, first and foremost. Particularly in times of the corona crisis, we can see that the employees continue to show undiminished commitment to the company. This deserves our very special gratitude.

Augsburg, March 25, 2020
The Supervisory Board

Dr. Yanmin (Andy) Gu
Chairman

Corporate Governance report

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

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

Again for this reporting year, the Executive Board and Supervisory Board of KUKA Aktiengesellschaft have examined the requirements of the GCGC in detail in its current version as of February 7, 2017 and issue the following declaration of compliance:

Declarations of compliance

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

The identical declarations of the Executive Board (dated January 30, 2020) and the Supervisory Board (February 7, 2020) in accordance with section 161 para. 1 sentence 1 of the German Stock Corporation Act (AktG) and the GCGC read as follows:

"Since issuing the latest declarations of compliance of the Executive Board (January 28, 2019) and of the Supervisory Board (February 15, 2019), KUKA Aktiengesellschaft has complied with the recommendations of the Government Commission on the German Corporate Governance Code as of February 7, 2017, which were published in the Bundesanzeiger (German Federal Gazette) dated April 24, 2017, with the exception of the divergences mentioned in these declarations of compliance; it will continue to comply with these recommendations in the future subject to the following divergences:

1. KUKA Aktiengesellschaft does not follow the recommendation for the Supervisory Board outlined in section 3.8 para. 3 of the GCGC. The Group D&O insurance policy does not provide for a deductible for members of the Supervisory Board. In KUKA Aktiengesellschaft's view, Supervisory Board members do not require a deductible to ensure that they properly fulfill their monitoring role.

2. KUKA Aktiengesellschaft does not follow the recommendation for the chair of the Audit Committee outlined in section 5.3.2 para. 3 of the GCGC. The Chairman of the Audit Committee is not to be regarded as an independent member within the meaning of section 5.4.2 of the GCGC because this person performs a management role for the shareholder controlling KUKA Aktiengesellschaft. As the CFO of Midea Group, the Chairman of the Audit Committee possesses special knowledge and experience in the application of accounting principles and internal control procedures.

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

The identical declarations of the Executive Board and Supervisory Board have been available on the company's website at www.kuka.com since February 20, 2020.

Corporate and management structure

Since January 6, 2017, Midea Group Co., Ltd. (through wholly-owned subsidiaries) has held 94.55% of the shares in KUKA Aktiengesellschaft. KUKA Aktiengesellschaft and its subsidiaries and affiliates form a "subgroup" (hereinafter "KUKA Group") within Midea Group.

KUKA Group is managed by KUKA Aktiengesellschaft as the Group's managing holding company. The organization within KUKA Group follows a customer-oriented structure of the operating business divisions (called the KUKA Business Organization). The core goal of the KUKA Business Organization is to focus on KUKA Group's customers through an appropriate breakdown of the operating divisions into the following segments: (i) Systems, (ii) Robotics, (iii) Swisslog, (iv) Swisslog Healthcare and (v) China (all activities in China are bundled in this segment).

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

Executive Board and Supervisory Board

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

Responsible cooperation between the Executive Board and the Supervisory Board

The common goal of the Executive Board and Supervisory Board is to sustainably increase shareholder value. To this end, the Executive Board and Supervisory Board work closely together in the interest of the company. No former members of the Executive Board sit on the Supervisory Board. The Executive Board reports to the Supervisory Board regularly, in a timely manner, and comprehensively regarding all matters relevant to the company with respect to planning, business development, risk exposure, risk management and any corresponding action taken. The Executive Board also addresses any deviations in the business results from the established plans and targets and explains the causes of such deviations. The Executive Board and/or Chief Compliance Officer also reports to the Supervisory Board regarding corporate compliance.

The Articles of Association and the Supervisory Board's rules of procedure contain provisions ensuring the right of the Supervisory Board to withhold its consent on significant transactions. Further information on cooperation between the Executive Board and the Supervisory Board can be found in the Supervisory Board report on pages 6 to 9.

In fiscal 2019, no consulting or other contracts for work or services existed between Supervisory Board members and the company.

We refer you to the report of the Supervisory Board (page 6) with regard to resolutions passed concerning business events during fiscal 2019 where conflicts of interest could have arisen for members of the Executive and Supervisory Boards.

Executive Board

The Executive Board of KUKA Aktiengesellschaft consists of three persons: the Chief Executive Officer (CEO), the Chief Financial Officer (CFO) and, since November 1, 2019, the Chief Technology Officer (CTO).

In fiscal 2019, the responsibilities of the members of the Executive Board were assigned as follows:

Peter Mohnen, Chief Executive Officer (CEO), is responsible for (i) Group strategy, (ii) public relations (communications & marketing), (iii) personnel and senior group executives, (iv) Internal audit and (v) legal affairs/compliance. Mr. Mohnen is also director of industrial relations at KUKA Aktiengesellschaft.

Mr. Andreas Pabst, Chief Financial Officer (CFO), is responsible for (i) finances and controlling, which includes the financial accounting, controlling, treasury and tax departments, (ii) risk management, (iii) IT, mergers & acquisitions (M&A), (iv) investor relations and (v) facility management.

Prof. Dr. Peter Hofmann, Chief Technology Officer (CTO), is responsible for (i) technical matters, (ii) technology, (iii) Group research & development and (iv) digitalization.

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

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

Executive Board compensation

Executive Board compensation is outlined in the compensation report.

Supervisory Board

KUKA Aktiengesellschaft's Supervisory Board consists of twelve members as per the Articles of Association, of which six represent the shareholders and six the employees.

The election of employee representatives to the Supervisory Board was held on April 10, 2018, in accordance with the provisions of the German Co-Determination Act (MitbestG). The results of the vote were published in the Federal Gazette (Bundesanzeiger) on April 17, 2018. A new election of Supervisory Board shareholder representatives was held at the Annual General Meeting on June 6, 2018.

The term of office of the Supervisory Board members representing the employees and the members representing the shareholders ends upon adjournment of the Annual General Meeting in 2023. This also applies to substitute members and other successors in office of employees and shareholders who subsequently join the Supervisory Board. This is because section 10 para. 4 sentence 1 of the Articles of Association stipulates that where a Supervisory Board member leaves office early, the term of office of the new Supervisory Board member runs only for the remaining term of office of the retiring member.

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

(i) At least two Supervisory Board members shall have sector-specific experience.

(ii) At least one Supervisory Board member shall have considerable professional experience abroad.

(iii) At least two Supervisory Board members to be elected at the Annual General Meeting shall be independent in terms of section 5.4.2 of the GCGC and shall not be affected by conflicts of interest in terms of section 5.5.2 of the GCGC.

(iv) Normally, Supervisory Board members shall be no younger than 35 and no older than 73 years of age at the time of their election.

(v) A member of the Supervisory Board may carry out his or her mandate for up to a maximum of three consecutive periods in office, although this limit may be ignored in exceptional cases when it is in the company's interests to do so.

(vi) In addition, the requirements of the German act to promote equal participation of women and men in management positions in the private and public sector (FührposGleichberG) of April 24, 2015 and the targets set by the full Supervisory Board concerning the number of women are to be observed.

In view of the criteria for independence as specified in section 5.4.2 of the GCGC, it should be noted that on account of their management roles within Midea Group the Supervisory Board members in office for fiscal 2019 (i) Dr. Yanmin (Andy) Gu, (ii) Hongbo (Paul) Fang (member of the Supervisory Board until May 31, 2019), (iii) Min (Francoise) Liu and (iv) Dr. Chengmao Xu cannot be regarded as independent according to the definition in section 5.4.2 of the GCGC.

In contrast, the members (i) Professor Dr. Henning Kagermann, Dr. Myriam Meyer and Mr. Alexander Liong Hauw Tan are/were independent as defined in section 5.4.2 of the GCGC, thus meeting the requirement for at least two independent Supervisory Board members who have been elected by the Annual General Meeting.

Mr. Paul Fang resigned from the Supervisory Board with effect from May 31, 2019. Dr. Chengmao Xu was appointed by court order to the Supervisory Board as Mr. Fang's successor with effect from June 17, 2019 (by order of the Augsburg Local Court dated June 12, 2019).

Mr. Alexander Tan resigned from the Supervisory Board with effect from December 31, 2019. Mr. Helmut Zodl was appointed by court order to the Supervisory Board as Mr. Tan's successor with effect from January 24, 2020 (by order of the Augsburg Local Court dated January 23, 2020). The Supervisory Board elected Mr. Zodl as a member of the Audit Committee with its resolution of January 29, 2020. Said committee elected Mr. Zodl as Chairman of the Audit Committee on the same day.

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

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

(i) the Mediation Committee as per section 27 para. 3 of the German Act on Company Co-Determination (MitbestG),

(ii) the Personnel Committee,

(iii) the Audit Committee (section 5.3.2 GCGC),

(iv) the Nomination Committee (section 5.3.3 GCGC), and

(v) the Strategy and Technology Committee.

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

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

The Supervisory Board regularly reviews the efficiency of its activities (section 5.6 GCGC). It recently had so-called best practice scenarios presented to it.

Supervisory Board compensation

The remuneration of the Supervisory Board is also outlined in the compensation report.

Shareholdings

Members of the Executive and Supervisory Boards or related parties are obliged according to section 19 of the Market Abuse Regulation (MAR) to disclose the purchase or sale of shares in KUKA Aktiengesellschaft, or financial instruments relating thereto, if the value of these transactions within one calendar year reaches or exceeds the sum of €5,000 (the applicable threshold until December 31, 2019). The transactions by persons with management roles or their related parties reported to KUKA Aktiengesellschaft in fiscal 2019 were duly published and can be examined on the company website at www.kuka.com.

Corporate Compliance

KUKA has always applied a high standard of ethical principles. Essential components are strict obedience to the law and value-oriented conduct. These form the basis of the Corporate Compliance Program adopted by the Executive Board in November 2007 and approved by the Supervisory Board in December 2007, which took effect throughout the Group on February 1, 2008. The key contents of the Corporate Compliance Program are contained in the Corporate Compliance Handbook, which comprises several compliance-related guidelines. The Corporate Compliance Handbook was revised and updated in fiscal 2010. It was again reviewed and updated in fiscal 2013 and the version now applicable is dated April 1, 2013. Various guidelines were adapted as of April 1, 2016 so as to adjust to the altered conditions. The handbook was also made more attractive and usable. This new version of the Compliance Handbook was issued to all employees worldwide. A benchmark analysis was performed in fiscal 2018, during which the codes of conduct of companies comparable to KUKA were analyzed. A worldwide in-house employee survey was also conducted in order to identify further potential for optimization.

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

KUKA endeavors to implement compliance together with all employees and external partners. To achieve this goal, various processes and measures are employed which jointly represent the KUKA Compliance Management System (CMS). According to the GCGC recommendations, the KUKA CMS has been recorded in writing and is available for examination by the public on the website at www.kuka.com. As a result of the regular changes occurring in the field of compliance, the CMS is a dynamic system and is therefore continuously being adapted to suit any relevant changes, most recently on August 1, 2019.

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

In fiscal 2016, the "Corporate Compliance" e-learning program was revised. Participation in this revised version of the e-learning program is obligatory for all employees throughout the world. The e-learning must be repeated at two-year intervals in order to refresh compliance-related knowledge. In fiscal 2018, the e-learning was integrated on the internal KUKA learning platform and the training process was optimized by means of an automated invitation to new employees throughout the Group to participate in the e-learning. The content of this electronic training course was revised and adapted to the updated Compliance Risk Map in the 2019 reporting year.

An offline version has also been produced for issue to all employees worldwide who do not have their own e-mail address and are therefore unable to participate in digital forms of training. In this way, all employees are reached in a targeted and workplace-related manner, in their respective working environments, and awareness of corporate compliance is created throughout the Group.

In addition to the online training courses, the company also held a series of seminars on selected topics. The content of the face-to-face training is based on the Compliance Risk Map. A further focus is on the importance of leadership behavior in order to integrate corporate compliance into the corporate culture.

Annual General Meeting

The 2020 Annual General Meeting will take place in Augsburg on June 19, 2020.

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

Accounting and annual audit

Since 2004, the annual financial statements of KUKA Group have been prepared in accordance with the International Accounting Standards (IAS) and the International Financial Reporting Standards (IFRS) as adopted by the European Union. An independent auditor elected at the Annual General Meeting audits the annual financial statements and the consolidated financial statements. At the recommendation of the Supervisory Board, shareholders at the 2019 Annual General Meeting chose KPMG AG Wirtschaftsprüfungsgesellschaft, Berlin, as auditor for the annual financial statements and Group auditor for fiscal 2019 as well as for a potential review of the half-year interim report for fiscal 2019.

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

Opportunity and risk management, controlling

Opportunity and risk management at KUKA Group is described in the risk report included in the annual report on pages 48 to 53. In accordance with legal requirements, the aim of risk management is early identification of any risk that could jeopardize the existence of KUKA Group and its operating companies as going concerns to enable measures to minimize, transfer or avoid risk to be taken. The risk strategy and risk policy is guided in particular by business risks, financial risks (including currency risks), and the specific risks of the divisions – in each case from a short, intermediate and long-term perspective. Controlling in particular is an essential tool for efficient risk management at KUKA Group.

KUKA further optimized opportunity and risk management in 2019. The Executive Board is tasked with adapting opportunity and risk management to changes in the business environment on an ongoing basis.

Financial publications

The company informs its shareholders, participants in the capital markets, and the media of its position and of significant business events, in particular by publishing quarterly releases, a half-year interim report, and the annual report, holding a financial statements press conference on the annual financial statements and conducting the Annual General Meeting each year. In addition, it issues ad-hoc releases under article 17 of the Market Abuse Regulation (MAR), notifications under article 19 of the MAR (Managers' transactions) and under section 33 of the WpHG (Notification requirements applicable to the party subject to the notification requirement; power to issue statutory orders), holds conferences with analysts, meets with analysts and investors in Germany, and issues other press releases.

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

Declaration regarding corporate governance

The corporate governance declaration as per sections 289f and 315d of the German Commercial Code (HGB) is posted on the company's website at www.kuka.com.

Compensation report

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

Executive Board compensation

1. Compensation structure

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

Fixed compensation

The fixed compensation consists of a base salary and payments in kind. The base salary is paid in twelve equal monthly installments. The payments in kind made to Executive Board members consist mainly of the non-cash benefits for the provision and use of a company vehicle. In addition, Mr. Mohnen received a pro rata fixed remuneration for his activities on the administrative board of Swisslog Holding AG in the 2019 financial year.

Variable compensation

The variable compensation paid to Executive Board members is dependent on the achievement of personal and financial targets of KUKA Group (company targets). The key performance indicators for the company targets are the EBIT and free cash flow of KUKA Group. The breakdown between personal and financial targets is/was as follows for the members of the Executive Board in office in the financial year:

Executive Board members	Share of personal targets	Share of financial targets
Peter Mohnen (CEO)	30%	70%
Andreas Pabst (Executive Board member, CFO)	33.33%	66.67%
Prof. Dr. Peter Hofmann (Executive Board member, CTO)	30%	70%

The details of the variable compensation structure (in particular the achievement of targets) are agreed separately each year. The variable compensation component is capped (maximum target achievement of 200%) and achievement of the financial targets is linked to business performance over several years.

Variable compensation (long-term)

a) Phantom share program 2016 – 2018

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

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

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

The cumulative EVA (actual EVA) for the three-year performance period was divided by the EVA for continuing operations in accordance with the operational planning for the three program years in order to determine a success factor. The success factor could fluctuate between 0 and 2.0. The final number of phantom shares depends on the success factor achieved, which is multiplied by the provisional number of phantom shares. The upper limit for the final number of phantom shares is capped at twice the number of provisional shares, which would constitute a success factor of 2.0. Payment is based on the final number of phantom shares at the final price of the KUKA share (average price of the KUKA share between January 2 of the year subsequent to the three reference years ("subsequent year") and the day prior to the financial review meeting of the Supervisory Board in the subsequent year). The relevant price thus determined for the KUKA share was €58.00.

The relevant Executive Board member was obliged to purchase a certain number of KUKA shares from the gross proceeds paid out on the basis of the programs, in order to build up a holding volume of 50% of the annual base remuneration (fixed annual remuneration) in the year of allocation. Until the holding volume had been built up, 25% of the gross amount paid out for the relevant year had to be spent on purchasing KUKA shares. The purchase amount is retained from the net proceeds.

The payment amounts (to be paid out in 2019) for the 2016 – 2018 phantom share program were limited to an amount equal to three times the allocation volume.

Of the Executive Board members currently in office, only Mr. Mohnen was entitled to participate in the 2016 – 2018 phantom share program. This program was settled for Mr. Mohnen in the 2019 financial year.

b) Long-term incentive plan

In the 2017 and 2018 financial years, the members of the Executive Board (in office at the time) were entitled to participate in long-term incentive plans (hereinafter "LTIPs") with annual allocation volumes in place of the phantom share program. The LTIPs are variable compensation components with long-term incentives.

The LTIPs cover a period of three financial years. The allocation volume is either already contractually agreed or set by the Supervisory Board before the respective three-year period commences.

At the start of the three-year performance period, the Supervisory Board also determines the key indicators and specifications for the target values of the success factors for the LTIP concerned. The relevant factors are (i) the performance factor and (ii) the strategy factor.

The key indicator for the performance factor is the EVA over the performance period. The EVA in this context is the Group EBIT (on a consolidated basis) less minimum interest (9%) on the Group's capital employed. The Supervisory Board stipulates the target values at its discretion, divided into (i) minimum target, (ii) target and (iii) maximum target. The minimum target corresponds to a performance factor of 0.50, the target to a performance factor of 1.00 and the maximum target to a performance factor of 1.50.

The relevant key indicators for the strategy factor are determined by the Supervisory Board at its discretion. The Supervisory Board also defines the target values for each key indicator. The minimum target corresponds to a strategy factor of 0.00, the target to a strategy factor of 1.00 and the maximum target to a strategy factor of 2.00.

The gross disbursement amount is calculated by multiplying the individual allocation value, performance factor and strategy factor for the performance period.

Under specific conditions defined in the LTIP, entitlement to payment of the gross disbursement amount may be waived in full or limited pro rata temporis.

c) KUKA Added Value Incentive Plan (KAVI)

Since the 2019 financial year, Executive Board members have been entitled to participate in the newly designed KUKA Added Value Incentive Plan (hereinafter "KAVI") as a long-term compensation component. In contrast to the LTIP, the KAVI is again based on long-term development of the earnings per share and the share price performance of KUKA Aktiengesellschaft and Midea Group Co. Ltd. The 2019 – 2021 KAVI plan has a term of three financial years.

Under the terms of the KAVI, each member of the Executive Board is granted an individual allocation value in euros. This allocation value is then multiplied by the sum of the earnings factor (50% weighting) and the share price factor (50% weighting). The earnings factor and share price factor are defined as follows:

Earnings Factor	The earnings factor refers to KUKA Aktiengesellschaft's earnings per share (EPS). The EPS target was formed from the average EPS for 2019 – 2021 as planned and amounts to €3.44 (factor 1). The minimum target for EPS was set at €2.06. If this minimum target is not reached, the earnings factor is 0.
Share Price Factor	The share price factor is made up of the following components: (i) share price performance of KUKA Aktiengesellschaft (80% weighting) and (ii) share price performance of Midea Group Co. Ltd. (20% weighting). With regard to the price development of KUKA shares, a benchmark group of 11 companies was defined, representing the Robotics, Systems, Swisslog and Swisslog Healthcare business segments. The share price factor is subject to minimum targets. If these are not achieved, the share price factor is 0.

The total amounts to be paid out from the LTIPs not yet settled and the ongoing KAVI are limited to three times the individual allocation value granted to each Executive Board member.

The total compensation for the Executive Board members (fixed annual salary, variable bonuses and payments under an LTIP or KAVI) is thus limited by the accumulation of caps on the individual items.

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

The employment contract of Mr. Mohnen also contains a change-of-control clause. In the event of a change in control within the company (sections 29 para. 2 and 30 of the German Securities Acquisition and Takeover Act (WpÜG)), they are entitled to terminate the employment contract within three months of the change in control occurring, subject to a notice period of three months. In the event of a termination, they will be entitled to a severance payment, which is measured against the compensation due for the remainder of the contract, but is restricted to twice the annual compensation at most. The employment contract of Mr. Pabst does not include such an arrangement. The employment contract between KUKA Aktiengesellschaft and Prof. Dr. Peter Hofmann was prematurely terminated effective end of day October 31, 2020, based on a termination agreement dated February 19, 2020. Prof. Dr. Peter Hofmann's position on the Executive Board terminated at the end of February 20, 2020 under the provisions of the aforementioned termination agreement.

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

2. Compensation for 2019

Executive Board compensation for the 2019 financial year is disclosed for each individual member in accordance with the standardized reference tables recommended in the GCGC. Following this, the compensation is disclosed separately according to “granted benefits” (table 1) and “actual inflow” (table 2). The target values (payment for 100% target achievement) and the minimum and maximum values achieved are also disclosed for the benefits.

Table 1: Executive Board compensation for 2019 – Overview of benefits

	Peter Mohnen CEO				Andreas Pabst CFO				Prof. Dr. Peter Hofmann CTO [1] from Nov. 1, 2019 until Feb. 20, 2020			
in € thousands	2018	2019	2019 (min)	2019 (max)	2018	2019	2019 (min)	2019 (max)	2018	2019	2019 (min)	2019 (max)
Fixed compensation (basic compensation)	628	1,000	1,000	1,000	42	600	600	600	–	75 [1]	75 [1]	75 [1]
Fringe benefits [2]	35	35	35	35	1	11	11	11	–	10	10	10
Other compensation [3]	200	73	73	73	–	–	–	–	–	–	–	–
Total	**863**	**1,108**	**1,108**	**1,108**	**43**	**611**	**611**	**611**	**–**	**85**	**85**	**85**
One-year variable compensation												
Bonus for 2018 [4]	300	–	–	–	14	–	–	–	–	–	–	–
Bonus for 2019 [4]	–	300	0	600	–	200	0	400	–	25	0	50
Multi-year variable compensation												
Company targets bonus for 2018 [5]	328	–	–	–	0	–	–	–	–	–	–	–
Company targets bonus for 2019 [5]	–	700	0	1,400	28	400	0	800	–	58	0	116
Long-term incentive plan 2017 – 2019 [6]	0	0	0	0	0	0	0	0	–	–	–	–
Long-term incentive plan 2018 – 2020 [6]	300	0	0	0	0	0	0	0	–	0	0	0
KAVI 2019 – 2021 [7]	–	300	0	900	–	150	0	45	–	17	0	51
Total	928	1,300	0	2,900	42	750	0	1,245	–	100	0	217
Grand total	**928**	**1,300**	**1,108**	**4,008**	**85**	**1,361**	**611**	**1,856**	**–**	**185**	**85**	**302**
Pension cost	–	–	–	–	–	–	–	–	–	–	–	–
Total compensation	**1,791**	**2,408**	**1,108**	**4,008**	**85**	**1,361**	**611**	**1,856**	**–**	**185**	**85**	**302**

1 Prof. Dr. Hofmann was a member of the Executive Board (Chief Technology Officer) from November 1, 2019 to February 20, 2020. His employment contract ends on October 31, 2020 on the basis of the termination agreement dated February 19, 2020 (the “Termination Agreement”). Prof. Dr. Hofmann receives annual fixed compensation of k€450. In the 2019 financial year, Prof. Dr. Peter Hofmann was paid the fixed compensation pro rata temporis due to the commencement of his employment on November 1, 2019.

2 The fringe benefits include expenses and non-cash benefits for the provision of company cars and insurance allowances. The premium for D&O insurance is included in the fringe benefits because, unlike the accident insurance, it cannot be allocated individually, as the company pays a lump-sum premium for the insured group of persons which goes beyond the members of the Executive Board. Prof. Dr. Hofmann is contractually guaranteed reimbursement of relocation costs of up to k€5 on presentation of receipts and a monthly housing allowance of up to k€1.5 per full month for a period of up to 12 months from the start of his employment on presentation of receipts.

3 Compensation for activities as administrative board members of Swisslog Holding AG.

4 Portion of variable bonus for achieving personal targets (with 100% target achievement) in the specified financial years (possible target achievement from 0 to 200%). Prof. Dr. Peter Hofmann receives an annual variable bonus of k€500 (with 100% target achievement), of which k€150 is attributable to the achievement of personal targets (with 100% target achievement). In the 2019 financial year, Prof. Dr. Peter Hofmann was paid this amount pro rata temporis due to the commencement of his employment on November 1, 2019 .

5 Deferred portion (50%) of variable bonus (with 100% target achievement) for the specified financial years. Prof. Dr. Peter Hofmann receives an annual variable bonus of k€500 (with 100% target achievement), of which k€350 is granted for the achievement of financial targets (with 100% target achievement). In the 2019 financial year, Prof. Dr. Peter Hofmann was paid the respective amounts pro rata temporis due to the commencement of his employment on November 1, 2019.

6 Allocation values for the long-term incentive plan 2017 – 2019 and long-term incentive plan 2018 – 2020.

7 Allocation values for the KAVI 2019 – 2021. For the KAVI 2019 – 2021, Prof. Dr. Peter Hofmann was granted an amount of k€17 in the 2019 financial year (allocation value pro rata temporis based on an amount of k€100) due to the commencement of his employment on November 1, 2019.

Table 2: Executive Board compensation for 2019 – Overview of inflow

	Peter Mohnen CEO		Andreas Pabst CFO		Prof. Dr. Peter Hofmann CTO [1] from Nov. 1, 2019 until Feb. 20, 2020		Dr. Till Reuter CEO until Dec. 5, 2018	
in € thousands	2018	2019	2018	2019	2018	2019	2018	2019
Fixed compensation (basic compensation)	600	1,000	0	600	–	75	800	–
Fringe benefits [2]	35	35	0	11	–	3	25	25
Other compensation [3]	200	73	0	–	–	–	400	–
Back payment of fixed compensation for 2018 [4]	**–**	**29**	**–**	**69**	**–**	**–**	**–**	**–**
Total	835	1,137	0	680	–	78	1,225	25
One-year variable compensation								
Bonus for 2017 [5]	552	–	–	–	–	–	756	–
Bonus for 2018 [6]	0	329	0	63	–	–	500	–
Multi-year variable compensation								
Company targets bonus for 2016	191	0	–	–	–	–	298	–
Company targets bonus for 2017 [7]	0	161	–	–	–	–	504	–
Company targets bonus for 2018 [7]	0	0	–	–	–	–	500	–
Phantom share program 2015 – 2017 [8]	370	–	–	–	–	–	582	–
Phantom share program 2016 – 2018 [9]	0	75	–	–	–	–	400	–
Long-term incentive plan 2017 – 2019 [10]	0	0	–	–	–	–	333	–
Long-term incentive plan 2018 – 2020 [11]	0	0	–	–	–	–	167	–
KAVI 2019 – 2021 [12]	–	–	–	0	–	0	–	–
Other share-based compensation [13]	2	0	–	–	–	–	3	–
Severance payment [14]	–	–	–	–	–	–	3,597	2,000
Total	1,115	565	0	63	–	0	7,640	2,000
Grand total	**1,950**	**1,702**	**0**	**743**	**–**	**78**	**8,865**	**2,025**
Pension cost	–	–	–	–	–	–	–	–
Total compensation	**1,950**	**1,702**	**0**	**743**	**–**	**78**	**8,865**	**2,025**

[1] Prof. Dr. Peter Hofmann was a member of the Executive Board (Chief Technology Officer) as of November 1, 2019. His employment contract ends on October 31, 2020 on the basis of the termination agreement dated February 19, 2020 (the "Termination Agreement"). In the 2019 financial year, Prof. Dr. Peter Hofmann received this amount pro rata temporis due to the commencement of his employment on November 1, 2019.

[2] The fringe benefits include expenses and non-cash benefits for the provision of company cars and insurance allowances. The premium for D&O insurance is included in the fringe benefits because, unlike the accident insurance, it cannot be allocated individually, as the company pays a lump-sum premium for the insured group of persons which goes beyond the members of the Executive Board. Prof. Dr. Hofmann is contractually guaranteed reimbursement of relocation costs of up to k€5 on presentation of receipts and a monthly housing allowance of up to k€1.5 per full month for a period of up to 12 months from the start of his employment on presentation of receipts. The reimbursement of lawyer's fees of up to k€25 to Dr. Reuter agreed under the terms of the severance agreement dated November 28, 2018 (the "Severance Agreement") accrued to him in the 2019 financial year.

[3] Compensation for activities as administrative board members of Swisslog Holding AG.

[4] For the period December 6 to December 31, 2018, Mr. Mohnen is entitled to additional, pro rata fixed compensation amounting to k€28. For the period December 6, 2018 to December 31, 2018, Mr. Pabst is entitled to pro rata fixed compensation and fringe benefits amounting to k€43. These sums accrued to Mr. Mohnen and Mr. Pabst in the form of a supplementary payment in the 2019 financial year.

[5] Variable compensation paid out in the 2018 financial year for the achievement of personal targets for 2017.

[6] Variable compensation paid out in the 2019 financial year for the achievement of personal targets for 2018. The bonus for 2018 was already paid out to Dr. Reuter in the 2018 financial year under the terms of the Severance Agreement.

[7] Deferred portions of variable compensation from the 2017 financial year, which were paid out in the 2019 financial year. The bonus for the 2017 company targets and the bonus for the 2018 company targets were already paid out to Dr. Reuter in the 2018 financial year under the terms of the Severance Agreement.

[8] Phantom share program 2015 – 2017 payout at a final price of €110.80 (average KUKA share price (opening price in XETRA trading on the Frankfurt Stock Exchange) between January 2, 2018 and March 20, 2018). The amounts paid out each represent the gross proceeds. The net payout results from the gross proceeds less taxes and social contributions, other statutory levies and the purchase price for actual KUKA shares.

[9] Phantom share program 2016 – 2018 payout at a final price of €58.00 (average KUKA share price (opening price in XETRA trading on the Frankfurt Stock Exchange) between January 2, 2019 and March 26, 2019). The amounts paid out each represent the gross proceeds. The net payout results from the gross proceeds less taxes and social contributions, other statutory levies and the purchase price for actual KUKA shares.

[10] Long-term incentive plan 2017 – 2019, payable in the 2020 financial year.

[11] Long-term incentive plan 2018 – 2020, payable in the 2021 financial year.

[12] KUKA Added Value Incentive (KAVI) 2019 – 2021, payable in the 2022 financial year.

[13] Payment of dividend equivalents in 2018 amounting to €0.50 per provisional share in the phantom share program 2016 – 2018.

[14] Severance payment under the terms of the Severance Agreement. The remaining portion of the severance payment amounting to k€2,000 was paid out in the 2019 financial year.

Payments granted to all members of the Executive Board in office in the 2019 financial year – taking into account the actual inflow – totaled k€2,523 in the 2019 financial year.

Provisions taking the total expected expense from the plans into account were recognized as of December 31, 2019 for all LTIPs in effect on that date and that have yet to be paid out and for the ongoing KAVIs that have yet to be paid out.

Apart from a few exceptions, former Executive Board members whose terms of office ended no later than 2008 were granted company pension benefits that included old age, professional and employment disability, widows' and orphans' pensions. The sum of the provisions recognized in 2019 for current pensions and expected pension benefits for this group of persons totaled k€9,966 (German Commercial Code) (2018: k€9,855).

Supervisory Board compensation

1. Compensation structure

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

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

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

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

2. Compensation for 2018 and 2019

The following table compares the compensation paid to members of the Supervisory Board in the 2018 and 2019 financial years:

Table 3: Supervisory Board compensation in 2019

in € thousands	Payment in 2019 for 2018	Payment in 2020 for 2019
Dr. Yanmin (Andy) Gu Chairman of the Supervisory Board Chairman of the Personnel, Mediation and Nomination Committees	225	225
Michael Leppek [1] Deputy Chairman of the Supervisory Board	150	150
Wilfried Eberhardt	30	30
Hongbo (Paul) Fang (until May 31, 2019)	30	12
Siegfried Greulich [1] (until June 6, 2018)	39	–
Manfred Hüttenhofer [1] (from June 6, 2018)	34	60
Prof. Dr. Henning Kagermann Chairman of the Strategy and Technology Committee	75	75
Armin Kolb [1]	90	90
Carola Leitmeir [1]	90	90
Min (Francoise) Liu	90	90
Dr. Myriam Meyer (from June 6, 2018)	52	90
Prof. Dr. Michèle Morner (until June 6, 2018)	26	–
Tanja Smolenski [1]	47	60
Alexander Liong Hauw Tan Chairman of the Audit Committee (until December 31, 2019)	88	105
Dr. Chengmao Xu (from June 12, 2019)	–	17

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

KUKA and the capital market

KUKA share

At the beginning of 2019, investors viewed the outlook for the trading year with concern. For although central banks had supplied the markets with copious quantities of money in recent years, global economic growth slowed down – albeit more for trade policy reasons than for financial ones.

Partly as a result of growing domestic political pressure in 2019, the US central bank Fed then lowered its central bank interest rate (Fed Fund Rate) in three steps of 25 basis points each to 1.75% in order to support economic growth. The European Central Bank (ECB) left the key interest rate unchanged at 0% despite a slight increase in inflation and continued its securities purchase program, although this was due to expire. Despite the reduced interest rate spread between the euro and the US dollar, the US dollar exchange rate gained around 2% over the course of the year and stood at 1.1221 USD/EUR at the end of the year. However, economic development weakened despite the stimulus measures adopted by the central banks. The fiscal measures were not able to maintain the growth momentum, which was mainly impaired by the trade war.

This development had little effect on the stock markets, however. On the contrary, central bank policy even supported a stronger flow of money into the stock markets. Both the slowdown in economic momentum and the decline in corporate profits hardly played a role on the stock markets. Instead, share prices rose significantly in the euro area and in the USA. The DAX, which tracks the performance of the 30 largest and most liquid companies on the German stock market and represents around 80% of the market capitalization of publicly listed corporations in Germany, rose by more than 25%, thereby almost attaining historic highs. The MDAX, which lists the 50 medium-sized stocks in Germany, had risen by 31% at year-end 2019. The SDAX also rose considerably by 32%.

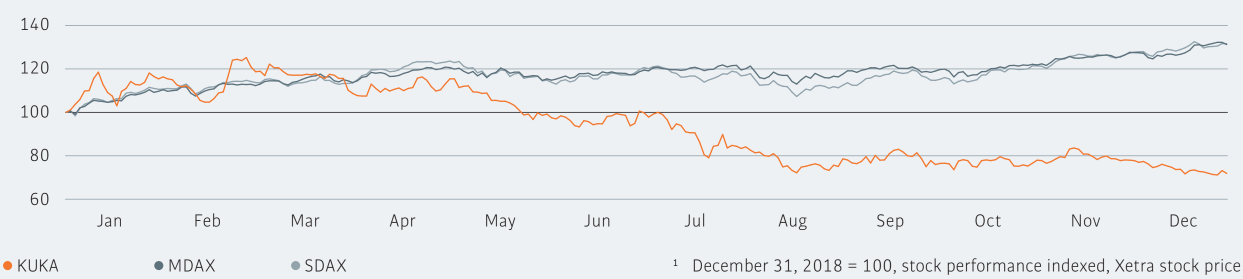
The KUKA share (WKN: 620440, ISIN: DE0006204407) was unable to profit from this development and even declined in value in the 2019 trading year. The share fell by around 28% to €36.50 over the course of the year from €50.80 at year-end 2018. This development is partly due to the low free float of KUKA shares of only about 5.5%, which makes KUKA shares less attractive for investors. The share prices of companies in the so-called peer group, i.e. companies that have a similar business profile and are of a comparable size, developed quite inconsistently, ranging from −66% to +31%. In 2019, the average daily trading volume of KUKA stock fell further to around 3,500 KUKA shares. By comparison, the average volume within the peer group was between 20,000 and 960,000 shares.

According to the last voting rights notification dated December 21, 2018, 94.55% of KUKA shares remain allocated to Midea Group Co., Ltd., Foshan, China, the parent company of Midea Group, as in the previous year. These shares are held directly by Midea Electric Netherlands (I) B.V. (81.04%) and Midea Electric Netherlands (II) B.V. (13.51%), two wholly-owned subsidiaries of Midea Group. The remaining 5.45% of KUKA shares are in free float. The KUKA share is still traded over the counter on the stock exchange and is listed in the HDAX, CDAX and Prime All Share indices.

		2013	2014	2015	2016	2017	2018	2019
Weighted average number of shares outstanding	millions of shares	33.92	34.17	36.14	39.60	39.78	39.78	39.78
Earnings per share	€	1.72	1.99	2.39	2.19	2.22	0.32	0.24
Dividend per share	€	0.30	0.40	0.50	0.50	0.50	0.30	0.15[1]
High for the year (Xetra closing price)	€	38.50	62.51	85.59	110.00	248.90	126.80	63.60
Lowest price (Xetra closing price)	€	26.40	33.85	56.86	68.10	87.38	46.80	36.15
Closing price for the year (Xetra closing price)	€	34.05	58.98	83.05	88.55	121.15	50.80	36.50
Change year-on-year	%	23.1	73.2	41.0	6.6	36.8	−58.1	−28.1
Market capitalization (Dec. 31)	€ millions	1,154	2,106	3,198	3,506	4,819	2,021	1,452
Average daily volume	No. of shares	144,000	157,000	156,000	83,000	14,000	6,000	3,500

[1] Subject to approval by shareholders at the Annual General Meeting on June 19, 2020

KUKA share price performance
January 1 – December 31, 2019[1]



[1] December 31, 2018 = 100, stock performance indexed, Xetra stock price

Consolidated management report

Consolidated management report

Fundamental information about the Group

Group structure and business activities

KUKA is one of the world's leading automation specialists and supports its customers in the holistic optimization of their value creation by providing comprehensive automation and digitalization know-how.

As a global technology corporation, KUKA offers its customers a full range of products and services 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 improved organizational structure – KUKA Business Organization (KBO) – introduced on January 1, 2019, comprises five business segments: KUKA Systems, KUKA Robotics, Swisslog (for a portion of the year Logistics Automation), Swisslog Healthcare (for a portion of the year 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.

Systems division

The Systems division offers custom-tailored complete solutions for automating manufacturing processes in the automotive industry. These include body production, the assembly of engines and transmissions, and also future-oriented business areas, such as electromobility with the development of charging assistants and battery module production systems. The portfolio 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.

The Systems division possesses expertise in the design of flexible and efficient production processes and 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 in the USA is responsible for the North/South America region and Shanghai in China manages 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, Greater Detroit and Shanghai. In Toledo (USA), KUKA Toledo Production Operations (KTPO) manufactures the Jeep Gladiator for Chrysler under the terms of a pay-on-production contract.

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 payload ranges 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 Füzesgyarmat.

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 its Swisslog division, previously Logistics Automation, 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, China, in 2019. Furthermore, research & development activities for new robot models, such as SCARA robots, are planned.

Markets and competitive positions

Automation in the worlds of production and logistics is continuously advancing. Many factories are no longer imaginable without it. The role of the robot in production shops has undergone great change. Whereas in the past, isolated robots were used to automate individual tasks and process steps behind safety fences, the current trend is towards intelligent assistants that can be fully integrated into production operations and work hand in hand with human operators. General industry is also profiting from this development and thus small and medium-sized companies whose production until now has hardly been automated. This is one major reason why global robot density is increasing year by year. At the same time, there is a focus on the gradual transformation to smart, digital production. Data collection, analysis and evaluation provide new opportunities for making processes more efficient and production facilities competitive for demanding markets.

In 2019, around 50% of KUKA's total sales revenues were generated from the automotive target market. The automotive industry thus remains an important pillar in KUKA Group's success. The company is one of the market-leading automation firms for the automotive industry. Beyond this, there are also major opportunities for growth in markets outside the automotive sector, i. e. in general industry. KUKA was able to further expand its business here, particularly in its strategic market segments of electronics, consumer goods, healthcare and e-commerce/retail.

KUKA is one of the market-leading companies in the European market and the North American market. The Asia region shows growth potential, particularly in the Chinese market. KUKA has strengthened its presence in China in recent years. Not only industrial robots, but also automation solutions such as warehouse management systems or solutions for healthcare systems are offered and sold in China. Robot models for the Asian market are manufactured at the production locations in Shanghai and Shunde. The International Federation of Robotics (IFR) forecast that sales of industrial robots in China will increase by an average of 20% per year between 2019 and 2022. However, due to current political and economic developments, customers remain cautious.

Corporate strategy

KUKA has grown strongly in recent years, benefiting from the highly dynamic, innovation-driven market environment that is being redefined under the influence of digitalization. Robotic automation in production and logistics, and increasing networking in factories are a global trend.

In the year under review, the company found itself faced with more adverse market conditions. In particular, the continuing weakness of the global economy, especially in KUKA's focus markets of automotive and electronics, and the trade dispute between the USA and China were a source of uncertainty and consequently resulted in restrained investment activities of customers.

Business models that enable customers to adjust their production facilities flexibly to the digital transformation and the associated changes, such as the individualization of products or demographic change, are thus all the more in demand. KUKA's aim is to support its customers in the overall optimization of their value creation processes by providing comprehensive automation and digitalization know-how. KUKA is therefore continuously supplementing its automation expertise with know-how in relation to cloud-based networking of machines and systems as well as data analytics. Furthermore, KUKA has bundled its Industrie 4.0 expertise within the company. The Munich-based subsidiary Device Insight is playing a central role here. It optimally complements KUKA's expertise, offering a comprehensive portfolio of products and services in the field of the Industrial Internet of Things (IIoT). New business models will fundamentally and permanently transform not only production in the future, but also the value creation process as a whole. KUKA regards supporting the customer through this transformation as a core task. Internal corporate structures have also been adapted to the digitalized world. With the "Customer Journey", Sales and Service are being integrated more closely into the digital processes. Important foundations were also laid for a strongly customer-oriented organization in the year under review. KUKA supports its customers on the road to automation and digitalization with the relevant expertise spanning from components, cells and systems or logistics solutions to their integration into the world of IT.

With the vision of becoming the first choice for intelligent automation and thus ensuring the long-term success of the company, KUKA is focusing on three strategic directions:

1. Leadership in technology and innovation

KUKA stands for innovations in robotic automation and has set itself the goal of driving digitalization forward. Together with customers and partners, KUKA is developing smart products and solutions for the intelligent factory of the future.

With a new generation of robots that are sensitive and can work hand in hand with humans, KUKA is setting new trends in robotics. While humans control and monitor production, collaborative robots complement their skills and perform arduous and non-ergonomic tasks. Enhanced with mobility and autonomous navigation, robots are being transformed into flexible production assistants that are becoming more and more intelligent.

The trend is towards robots that are simple to program, flexible to deploy and easily integrated and networked. The LBR iisy is meanwhile the second sensitive robot from KUKA that now meets precisely these requirements. With KUKA Marketplace and KUKA Connect, KUKA is digitalizing the customer experience and driving ahead with the transformation towards the factory of the future. KUKA Connect, for example, enables customers from a wide range of different industries to network machinery and systems digitally in the cloud and thus to access and analyze their data at any time and from anywhere. KUKA is taking another decisive step on the road to the digital and connected future with the modular, service-oriented and user-friendly logistics software platform SynQ. Swisslog's intelligent warehouse management system orchestrates and improves all flows of material in warehouse operations and visualizes them in real-time and in 3D. In the year under review, KUKA also launched the new generation of the successful KR QUANTEC robot series.

In this way, KUKA is supporting its customers on the way to the factory of the future. New business models need to be developed because customers are being confronted with new challenges posed by increasing type variety, more frequent changes of model and fluctuating production quantities. They require flexible automation solutions with quickly adaptable production cells. And the conversion times of the systems must be as short as possible. It is in response to these requirements that KUKA has developed "Smart Production" – a demo factory that meets precisely these needs. Parts logistics and production are linked by automated guided vehicles. With the help of data-driven analytics, manufacturers can also track their energy consumption or the maintenance intervals in their own production facilities.

2. Diversification of business activities

KUKA is one of the market-leading automation companies for the automotive industry. There are also many opportunities to expand business in sectors outside the automotive industry, i.e. in general industry.

KUKA concentrates on markets that are primarily characterized by high growth and profit potential. The degree of automation in many sectors is still relatively low, particularly when compared with the automotive industry. KUKA's aim is to support its customers in the holistic optimization of their value creation processes by providing automation and digitalization know-how. This enables processes to be designed for greater efficiency and flexibility. Additionally, it will optimize resource and energy consumption while raising quality. Through various acquisitions and their integration, KUKA has selectively expanded know-how here, making use of it to strengthen its own market position.

In 2019, KUKA further intensified its focus on the following strategic market segments:

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% of 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 solar cells, precision medical equipment, 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). The electronics industry will experience 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 automation.

Consumer Goods
Robots have been efficiently and successfully supporting the production of fast-moving consumer goods (FMCG) for many years, especially in the food and beverage industry, but also in shoe 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.

3. Sustainable and efficient cost structures

The past financial year was characterized by a general economic slowdown, particularly in markets that are important for KUKA, namely the automotive and electronics markets and China.

The cost structure in all divisions was intensively scrutinized and numerous optimization measures were implemented at short notice. KUKA achieved its efficiency target for 2019: savings of around €100 million were generated and the socially acceptable reduction of 350 jobs at the Augsburg location has been completed. Our focus for the following financial year continues to remain on increased efficiency in all divisions.

Financial management system

The Group's strategy is aimed at sustainably increasing the enterprise value. The internal Group management and monitoring of the business performance is based on various key financial performance indicators (KPIs). KUKA Group's financial targets are also KPIs that track the enterprise value of the company.

The most important KPIs for KUKA Group are revenues, EBIT and free cash flow. The development of these variables is presented in the "Business performance" section starting on page 31 and under "Financial position and performance" from page 32 on. Operating earnings before interest and taxes (EBIT) are compared to sales revenues to determine the return on sales. This results in the EBIT margin. EBIT is determined for KUKA Group and the divisions. Free cash flow – cash flow from operating and investment activities less capital spending – shows whether the investments can be funded from cash flow, and how much cash is available to pay a dividend and service debt.

These key indicators are published and are also partly taken into account in KUKA Group's target and remuneration system. This ensures that all employees share the same goals.

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

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

Key performance indicators for KUKA Group over 5-year period

in € millions	2015	2016	2017	2018	2019
Sales revenues	2,965.9	2,948.9	3,479.1	3,242.1	3,192.6
EBIT	135.6	127.2	102.7	34.3	47.8
Free cash flow	95.7	−106.8	−135.7	−213.7	20.7

Achievement of targets

In its outlook in the 2018 annual report and at the annual results press conference on March 28, 2019, the Executive Board forecast sales revenues for fiscal 2019 of around €3.3 billion and an EBIT margin of around 3.5% before final evaluation of the reorganization expenditure.

On September 24, 2019, KUKA adjusted its original forecast, anticipating sales revenues of around €3.2 billion and an EBIT margin that, including all reorganization expenditure, was expected to surpass the previous year's level of 1.1%.

This adjustment was primarily due to the cooling of the global economy, which had a negative impact on the company's business development. The focus markets of automotive and electronics were particularly affected by this, as well as the Europe and China regions. In addition, there were further costs resulting from existing orders and the need for restructuring a subdivision. All this had a negative impact on the expected revenue and earnings for fiscal 2019 and necessitated an adjustment.

At the time of publication of the third quarter results, KUKA expected a slight decline in demand for fiscal 2019. Overall, a positive development was forecast for the Americas region and a decline for Asia and Europe. From a sector perspective, KUKA expected the sales markets in general industry to develop slightly positively compared with the previous year, while an overall decline was anticipated for the automotive industry. In its forecast for fiscal 2019, KUKA pointed out the uncertainties arising from the highly unpredictable political and global economic developments. This was because the world's largest sales markets for robotics – the automotive and electronics industries – were affected.

2019 target values

	Sales revenues	EBIT margin
Annual results press conference for the full year 2018	~€3.3 billion	~3.5%[1]
1st quarter 2019	~€3.3 billion	~3.5%[1]
2nd quarter 2019	~€3.3 billion	~3.5%[1]
Ad hoc September 24, 2019	~€3.2 billion	>1.1%[2]
3rd quarter 2019	~€3.2 billion	>1.1%[2]

1 Before final evaluation of final reorganization expenditure

2 Including all reorganization expenditure

In the year under review, the adjusted target value for sales revenues released in September 2019 was met. The Group generated sales revenues totaling €3,192.6 million (2018: €3,242.1 million). The EBIT margin of 1.5% including reorganization expenditure was thus above the previous year's figure of 1.1%. The adjusted target value was reached. For detailed information on the development of the segments, please refer to "Business performance".

In the year under review, KUKA generated net income of €17.8 million, thus surpassing the previous year's result slightly (2018: €16.6 million). Investments totaled €151.1 million and were therefore considerably below the previous year's amount (2018: €295.4 million). In the year under review, KUKA invested in the expansion of its sites around the world as well as in innovative products and solutions.

Free cash flow in fiscal 2019 was positive, amounting to €20.7 million. Trade working capital improved significantly and KUKA achieved a positive free cash flow for the first time in three years. A free cash flow level was forecast consistent with that of the previous year (2018: –€213.7 million). For detailed information, please refer to the section "Financial position and performance" from page 32 onwards.

Research and development

The area of research and development (R&D) is of crucial importance for the sustainable and long-term success of KUKA as an innovative technology enterprise. That is why KUKA once again invested heavily in innovative technologies, products and solutions in the year under review. Research and development expenditure amounted to €160.5 million in 2019, higher than the value for the previous year (2018: €151.9 million).

KUKA's research and development activities are based on market needs, customer requirements and expected trends. KUKA's Corporate Research is active on a Group-wide scale and develops technologies for the Group companies. It collaborates closely with universities and renowned institutes worldwide. Through its research and development activities, KUKA is able to open up new areas of application and further advance technological progress.

In the year under review, KUKA Group filed a total of 108 patent applications and 280 patents were granted. The focus was on innovations in the area of simplified use and on applications in the field of current and future key technologies in industrial production, logistics, mobility and human-robot collaboration, as well as new products for focused growth markets such as Asia. The research and development activities have led to the following results:

New generation of the best-selling KUKA robot and expansion of the product portfolio

At the start of 2019, KUKA launched the new generation of the successful KR QUANTEC series. The robot for high payloads is KUKA's bestseller. Since its market launch in 2010, over 100,000 robots of this series have been delivered. The reasons for this are the "all-rounder" robot's high reliability and also its uniquely broad spectrum of applications compared to competitors. The robots are designed for use in nearly every market segment – such as the automotive industry, the foundry sector and the field of medicine, as well as for machining and handling tasks.

With the new series, we were able to achieve greater efficiency and thus lower total cost of ownership (TCO). Use of low-maintenance or maintenance-free components enables longer maintenance intervals, therefore reducing downtimes. 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%.

To expand its product portfolio, KUKA is pressing ahead with the development of a SCARA robot. The SCARA robot will especially meet the needs of customers in the electronics market and other sectors of general industry.

Digitalization in our own production shops

Digitalization of the production environment continues to advance in many branches of industry. In order to provide customers with insights into usable robot data, KUKA offers a cloud-based analysis and intelligence platform: KUKA Connect. The solution gives users access to their KUKA robot data at any time and from any device, and is also used by KUKA in its own production, for example in the machining of components. Similar to a smart watch, the robots and machines collect a variety of data and transmit these data to the cloud. The data collected by the KUKA robot can then be processed and evaluated via KUKA Connect. In this way, it is possible to have full visibility and exercise full control over the current production process at all times.

smartProduction_control – first AI-based KUKA software in an automotive plant

The AI-based software SmartProduction_control for controlling versatile, highly flexible production systems has been available on the market since 2019. The software is already in use and controls a section of a modern automotive plant in Europe. The loading robots of the production line here are alternately presented with a total of eight different car side panels and roofs for assembly. These components are kept ready in three supply areas close to the line, each of which is equipped with three intelligent KMP1500 robotic AGVs from KUKA. The software communicates with the line PLC, the AGVs, the safety equipment and other system software using the communication protocol OPC_UA, thereby ensuring that the production line is supplied with the requisite material. Unlike other solutions, the AI-based software SmartProduction_control is able to provide the parts exactly matching the cycle time, as well as controlling the unloading of the material from a delivery vehicle and the removal of empty containers.

Arena2036: production of the future

The production of the future needs to be flexible, individual and, of course, functionally integrated. In ARENA2036, experts from more than 30 companies and scientific institutions are discussing how this can be implemented in practice. "ARENA" stands for Active Research Environment for the Next Generation of Automobiles. And in 2036 the automobile will be celebrating its 150th anniversary. It is the largest research platform for mobility and the automotive industry in Germany. In a number of bilateral and multilateral projects, KUKA is addressing the question of how to make the production of the future more flexible and efficient. As a partner in one of the major flagship projects of ARENA2036, KUKA is involved in the development and testing of fluid production methods, among other things. Work is being carried out, for example, on using augmented reality (AR) in systems engineering. AR helps to depict the construction and conversion of a production system in the early stages of planning and provides the opportunity of identifying improvement potential in good time. Is accessibility sufficient for employees, for example? Has the space been optimally used? In the case of subsequent conversions of the cells, simulation using a realistic digital model saves time and money.

Swisslog and KUKA Robotics present joint development

The variety of products in small parts warehouses is overwhelming. The same is true of their packaging. More and more orders are placed online. This is transforming the logistics sector. At LogiMAT 2019, Swisslog presented the next generation of its robotic order-picking solution ItemPiQ. The solution, a perfect example of how the expertise of KUKA Robotics and Swisslog dovetails, uses new robot technology and an intelligent vision system to enhance picking performance and to utilize machine learning functions. ItemPiQ picks a great variety of articles, which are recognized by the intelligent vision system from Roboception. This system is able to identify the gripping points on unknown items. Thanks to its multi-function gripper, the small robot from the KR AGILUS family can handle a wide spectrum of common products in the retail, e-commerce and pharmaceutical sectors weighing up to 1.5 kg. Depending on the size, weight, goods-to-robot transfer system and storage method, ItemPiQ can pick up to 1,000 items per hour. Solutions such as ItemPiQ serve to improve users' efficiency and give them a competitive edge in their warehouse logistics. High-performance, integrative control software, innovative robotics solutions, and machine learning are the elements that really set these solutions apart.

KUKA Innovation Award 2019: focus on medical robotics for the first time

The KUKA Innovation Award has been a fixed institution for researchers, developers and entrepreneurs since 2014. In 2019, the focus was on medical robotics for the first time. The topic: "Healthy Living". From a large number of entries, an international panel of judges selected five promising teams to present their concepts at the KUKA booth at MEDICA – the world's largest medical technology fair. Each team was loaned a KUKA LBR Med for its project. The sensitive robot for medical technology is the first robotic component worldwide to be certified for integration into medical products. The panel of judges crowned the RoboFORCE team, consisting of researchers from the Universities of Leeds, Vanderbilt and Turin, as the winners. This team impressed the panel with its concept of robot-assisted, magnetic endoscopy for painless colorectal cancer screening. The KUKA Innovation Award is revolving around medical robotics once again in 2020. The topic this year is "Medical Robotics Challenge".

Foundation of an alliance for the implementation of existing standards in the Industrie 4.0 environment

The capability of networking different machines is the basis for a successful fourth industrial revolution. In October 2019, KUKA and SAP became founding members and partners of the "Open Industry 4.0 Alliance". The objective is to enable up to 80% 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.

At the end of 2019, the Open Industry 4.0 Alliance successfully presented itself for the first time with all nine founders and 33 members with a joint exhibition booth at the SPS trade fair in Nuremberg.

Presentation of sensitive robotics for complex industrial and medical applications at ICRA 2019

KUKA exhibited an innovative project on automated assembly and showcased highly innovative robot-based medical technology at the International Conference on Robotics and Automation (ICRA) in 2019. In Montreal, Canada, KUKA presented an application in which robots can grasp and assemble objects, even when these are not located in a precisely defined position. The KUKA application at ICRA demonstrated the potential in industrial applications for intelligent robots that are capable of learning. Here, the sensitive KUKA LBR iiwa lightweight robot joined components that had been placed randomly on a table beforehand. For this, the operator guided the robot manually to the approximate position of the components. The LBR iiwa then picked up the components autonomously and fitted them together precisely.

In the surgery area of the future, robots and surgeons will work closely together. The "Next Generation Surgery" workshop explored how humans and machines can better collaborate by means of machine learning and the seamless integration of robots into the operating room. KUKA gave two lectures and presented KUKA's own innovations in the field of medical robotics as well as selected contributions from the finalists for the KUKA Innovation Award.

KUKA at the 2019 European Robotics Forum

At a meeting of the European Robotics Forum (ERF) in Bucharest, Romania, KUKA demonstrated how robots can support people. Researchers, politicians and industry representatives offered more than 50 workshops on current topics in the fields of robotics and artificial intelligence. At the accompanying exhibition, companies, universities and institutes had the opportunity to provide an insight into current research and projects and to exchange ideas within the robotics network. The event is initiated every year by the European robotics association euRobotics aisbl, in which KUKA is also involved.

In a joint research project with the Technical University of Cluj-Napoca, KUKA presented an application with the LBR iiwa sensitive lightweight robot at the ERF. In this, the human operator navigates the robot by hand through a 3D labyrinth, guided by virtual walls. The robot remembers the path and is then able to follow it again exactly. The application demonstrates how closely humans and robots can collaborate. Thanks to the sensitive characteristics of the LBR iiwa, safety fencing is not required and direct human-robot collaboration (HRC) becomes possible. In day-to-day production, people can thus be relieved of monotonous, repetitive and ergonomically demanding work and devote themselves to more complex tasks. In this way, current challenges facing society, such as demographic change, can be met with the aid of HRC-capable robots.

KUKA showcases innovation project at the IROS research trade fair

In cooperation with the Hong Kong Applied Science and Technology Research Institute, KUKA showed how new technologies help to minimize complexity, costs and time in production at this year's IROS in Macau. The International Conference on Intelligent Robots and Systems is one of the most important robotics conferences worldwide. Participants and specialists can exchange views on the latest innovations and technical developments in workshops, forums, discussions and the accompanying robotics exhibition. In addition to the exhibition, KUKA was actively involved in forums and workshops, including the CEO Forum, the Industrial Forum and the workshop on the topic of "Intelligent Robotics Research" to encourage the exchange of ideas between industry and research. The conference is sponsored by the IEEE (Institute of Electrical and Electronics Engineers), as well as by other associations, societies and companies.

The application at IROS demonstrated a robotic welding process on a workpiece. First, the user defines the welding path in the virtual world using a 3D model of the workpiece. Everything runs automatically after that: a camera detects the workpiece and determines its position in space and in relation to the robot. For this, various algorithms come into play in order to estimate the position – some using artificial neural networks – and to plan the motion. The robot then executes the determined process path. A laser pointer helps to visualize the welding process. The combination of simulation in the virtual world and camera-based automatic calibration in the real world enables the system to adapt quickly to new workpieces and potential variations. Processes can also be checked and optimized in the simulation. Digital twins help to minimize the complexity of the design and thus to reduce cost and time.

Procurement

Efficient purchasing management is essential for successful order processing. This includes ensuring the required quality at optimal costs and implementation on schedule. The processes and responsibilities pertaining to supply chain management are clearly defined at KUKA. By structuring the overall business into individual business segments, each with its own responsible management, segment-specific requirements can be implemented within the associated functions, while maintaining close coordination of the specialist departments.

The processes in the procurement departments within the segments are increasingly standardized and are regularly being improved. This allows KUKA to further optimize its delivery availability. In the project business, for example, it was possible to optimize the availability of supplies and services through even closer interdepartmental cooperation. In this way, deadlines and quality can be measured better and actively controlled via the process chain. In turn, the improved coordination facilitates planning of the entire supply chain.

The procurement departments also focus on optimizing working capital management. In the Robotics business segment, it has been possible to achieve significant improvements, for example, by expanding consignment stock procedures, making ordering and delivery concepts more flexible and optimizing distribution warehouse management.

KUKA is in close contact with its major suppliers. To improve quality and achieve cost advantages, the supplier base is regularly reviewed and further expanded. Procurement is becoming an increasingly local matter. In the Robotics segment, for example, the share of local suppliers in China has grown continuously in recent years and procurement management has been optimized with regard to qualitative aspects.

Economic report

Macroeconomic and industry conditions

Weak growth of the global economy

In January 2020, the International Monetary Fund (IMF) reduced its forecasts for growth of the global economy for both 2019 and 2020. The IMF now expects an increase of 2.9% (2019) and 3.3% (2020), reducing its previous forecasts by 0.1 percentage points in each case. The reasons stated for the reduction were geopolitical tensions, for example between the USA and Iran, and the anti-government protests in many countries. These could have a further impact on development of the economy. The current forecast does not yet take into account the effects of the coronavirus crisis. In its January 2020 forecast, the IMF noted positively that the continuing expansionary monetary policy, the partial agreement in the trade conflict between the USA and China, and the easing concerns about an unregulated Brexit are regarded as signs of stabilization.

For the eurozone, the IMF estimates that economic growth was 1.2% over the past year. A slight recovery and growth of 1.3% are predicted for 2020. According to the IMF, Europe is increasingly becoming the powerhouse of the global economy and making a major contribution to increasing global economic output. The German economy should be able to pick up some momentum again in 2020. The IMF is predicting a growth rate of 1.1%. In 2019 growth was just 0.5%. For 2021, the IMF expects a 1.4% increase in Germany's economic output. As an export nation, Germany is set to benefit from stabilization of the global economy.

The US economy grew by 2.3% in 2019. The IMF forecasts growth of only 2.0% for 2020 and of just 1.7% for 2021. In China, the sentiment among companies had deteriorated significantly due to the ongoing trade war. At the end of the year, however, hopes of an agreement served to brighten the mood. The IMF expects China to grow by 6.0% in 2020 and by 5.8% in 2021.

The current market environment remains difficult, however. In particular, the dispute over import tariffs and discussions about free trade are influencing companies' investment decisions and putting pressure on the global economy.

The Business Climate Index of the Institute of Economic Research (ifo) is regarded as an early indicator of economic development in Germany. The ifo index rose to 96.3 points in December 2019 after 95.1 points in November. Companies assessed both their current business situation and the outlook for the coming months as better than in November. It is assumed that the lowest point of the economic downturn in 2019 has been overcome.

Inconsistent development of car markets worldwide

According to the German Automotive Industry Association (VDA), automotive business showed a varied development around the world in 2019. With about 15.8 million newly-registered cars in 2019, Europe surpassed the previous year's level. While car sales were up +5% in Germany and +2% in France, new registrations were down –2% in the UK and –5% in Spain.

The Chinese automobile market contracted last year, decreasing by almost 10% year-on-year to 21 million new vehicles. The total volume of new registrations in 2018 was about 23.3 million cars. The weak overall economic growth of the Chinese market was disproportionately reflected in the car market.

In the US market, the number of new sales declined by –1% to just under 17 million vehicles. This was the first time in three years that the 17 million mark was not exceeded. There was even an 11% drop in car sales. In contrast, sales of German car brands increased by almost 2% to 1.37 million vehicles. According to the VDA, their market share consequently rose from 7.8% to 8.1%. German manufacturers produced 720,000 vehicles in the USA in the first eleven months of the year under review, 4% more than the year before.

The automotive industry is caught in a challenging position between a downturn in the global automotive market, uncertainties in trade politics and the advance of alternative drive technologies and digitalization. Manufacturers are thus confronted with the challenge of having to make high investments in a fundamental structural transformation in the face of declining market momentum.

German automakers and suppliers are addressing the challenges and plan to invest around €50 billion in the research & development of alternative drive systems by 2024 in order to achieve climate protection targets. Over the same period, a further €25 billion is earmarked for digitalization as well as connected and automated driving. By 2023, German manufacturers intend to triple their range of electric vehicles to over 150 EV models.

After 2019, 2020 will be another challenging year for them. The VDA is expecting a decline of 2% in Europe compared with the previous year. A decrease of 3% is forecast for the US market and 2% for the Chinese market. According to the VDA, the major markets are suffering from a lack of growth drivers in both 2019 and 2020. It can be assumed that the road will become more arduous for German car manufacturers, competition tougher and the headwind harsher.

Difficult market environment for the engineering sector

According to the German Mechanical Engineering Industry Association (VDMA), German engineering companies are having to hold their own in an increasingly difficult market environment. The main reasons for this are the weak global economy, increasingly harsh threats and sanctions in the global trade disputes, and far-reaching structural changes in the automotive industry. As a result, production of machinery in the first eleven months of 2019 fell by 2.4% (in real terms) year-on-year. For the full year 2019, the VDMA is predicting a decline of around 2%. The mechanical engineering sector reported a 15% drop in orders received over the same period. There was a continuation of the predominantly negative development from the previous months. Orders from domestic customers fell by 15%, those from foreign customers by 14%. The volume of orders received in the robotics and automation sector was 16% lower in the first eleven months.

The VDMA does not see the industry in a crisis, but reports that many customers are lacking confidence and are postponing or stopping their investments. There is no short-term improvement in sight and the VDMA anticipates a further decline of 2% in 2020. However, economic growth is still hampered by a high degree of uncertainty.

Robotics and automation still on course for growth

According to the International Federation of Robotics (IFR), around 422,000 robots were installed worldwide in 2018[1], an increase of 6% over the previous year. More than a third of the industrial robots were installed in China. The automotive and electronics industries are among the world's largest customer segments. Of the robots sold worldwide in 2018, 30% were installed in the automotive industry and 25% in the electronics industry.

For the 2019 financial year, the IFR forecasts global sales of around 421,000 industrial robots. Sales will thus be at a similar level to the previous year. In Asia, the IFR anticipates sales of about 285,000 industrial robots in 2019. This also means stagnation compared to the previous year. A slightly positive development is predicted for the Chinese market. The number of robots sold is estimated at 160,000. The IFR is anticipating an average annual growth rate (CAGR) of 12% worldwide between 2020 and 2022. This includes growth of 8% in North and South America, 14% in Asia/Australia and 5% in Europe.

According to the IFR's predictions, the global trend towards robot-based automation of manufacturing processes is set to continue. Innovations and technologies will create new products and solutions. New areas of application are being opened up and the worldwide market is growing. Automation enables companies of different sizes in a variety of sectors to structure their production so as to be more efficient. Today, ever more process steps can be automated where the use of robots has previously been inconceivable. This development is being driven by the combination of the real and virtual production worlds in the context of Industrie 4.0 and by technologies such as safe human-robot collaboration and mobile robotics. In a networked, digital factory, robot-based solutions that ensure safe working and intuitive operability will play an important role.

[1] The final figures for 2019 will be published by the IFR in September 2020.

Business performance

KUKA Group

KUKA was confronted with challenges on account of the difficult market environment. The dispute over import duties and discussions about free trade exerted pressure on the global economy and affected companies' investment decisions. The focus markets of automotive and electronics were particularly affected by this, as well as the Europe and China regions. In the year under review, KUKA Group's volume of orders received therefore declined by 3.5% from €3,305.3 million to €3,190.7 million. Sales revenues fell slightly by 1.5% to €3,192.6 million from €3,242.1 million in the previous year. The book-to-bill ratio was 1.00 in the 2019 financial year, a small decrease on the previous year (2018: 1.02). Values above 1 mean good capacity utilization and are an indicator of growth. The order backlog decreased by 4.3% from €2,055.7 million as at December 31, 2018 to €1,967.4 million as at December 31, 2019. Despite the difficult market environment, EBIT grew significantly from €34.3 million in 2018 to €47.8 million in the financial year under review. This includes a low double-digit million euro amount from a deconsolidation transaction. KUKA reacted to the changed framework conditions in good time and initiated wide-ranging efficiency measures in January 2019. This made it possible to improve the cost structure considerably. EBIT rose 39.4% year-on-year. It must also be taken into account that sales of shareholdings in companies worth a double-digit million euro amount had a positive effect on earnings in the previous year. In the current financial year, the change of consolidation method resulted in income in the low double-digit millions. The EBIT margin increased from 1.1% to 1.5% in 2019.

Systems

The Systems business segment saw its volume of orders received fall from €959.8 million in 2018 to €858.0 million in the current year. This corresponds to a considerable decline of 10.6% and reflects the noticeable reluctance of customers to place orders. The sales revenues of €925.4 million were at the same level as in 2018 (€925.4 million). The lower revenues due to the reduced order volume were offset by the start of production at KTPO. The book-to-bill ratio decreased year-on-year from 1.04 to 0.93 in 2019. The order backlog totaled €614.3 million as at December 31, 2019 (December 31, 2018: €713.2 million). EBIT amounted to €26.9 million, thus remaining 8.8% below the previous year's level of €29.5 million. The earnings were impacted by the difficult order situation and deteriorations in existing projects in Europe. The high complexity of these projects led to delays and consequently also to additional costs. The EBIT margin fell from 3.2% to 2.9% in the financial year under review.

Robotics

In the 2019 financial year, the Robotics segment generated orders received totaling €1,037.1 million, 13.3% down on the previous year (2018: €1,196.5 million). Revenues decreased by 7.1% from €1,247.3 million in 2018 to €1,159.2 million in 2019. Due to the ongoing difficult situation of the global economy, customers are still holding back on placing orders. The book-to-bill ratio stood at 0.89 (2018: 0.96). The order backlog totaled €275.8 million as at December 31, 2019 (December 31, 2018: €395.9 million). Not only the lower revenue volume, but also the strained economic development in a subdivision of Robotics over recent years had a negative impact on earnings. The subdivision supplies automated production solutions, such as cells and special machines, worldwide and is facing a restructuring process, which had a negative impact on EBIT in the low double-digit millions in the year under review. EBIT amounted to €37.7 million, after €80.9 million in the previous year. The EBIT margin of 3.3% was down on the previous year's figure of 6.5%. This decline was caused mainly by the restructuring of a subdivision. In the previous year, a low double-digit million euro amount from the sale of shareholdings in companies had a positive effect on EBIT.

Swisslog

Swisslog recorded a strong increase in orders received of 24.8% to €750.2 million, after €601.1 million in the 2018 financial year. This increase was possible due to systematic implementation of the growth strategy. Swisslog continues to benefit from high global customer demand in its focus markets of e-commerce/retail and consumer goods. Sales revenues totaled €600.0 million and were thus 1.2% below the previous year's level of €607.1 million. It must be noted here that since 2019, the business in China has been included only proportionately in the earnings and no longer in the sales revenues on account of the changed control situation. The book-to-bill ratio rose to 1.25 (2018: 0.99). The order backlog stood at €653.9 million as at December 31, 2019, after €531.6 million as at December 31, 2018. EBIT increased sharply to €10.5 million after –€0.2 million in the previous year. The EBIT margin was up to 1.8% from 0.0% in 2018.

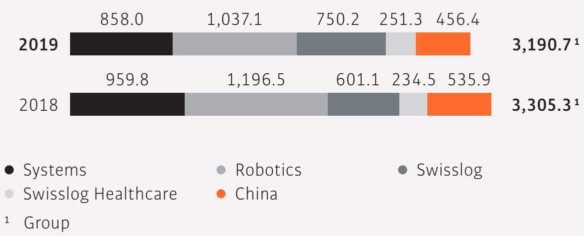
Swisslog Healthcare

At €251.3 million, orders received at Swisslog Healthcare in 2019 considerably surpassed the prior-year figure of €234.5 million by 7.2%. The segment succeeded in generating more orders especially in the areas of Pharmacy Automation and Transport Automation. The sales revenues of €222.3 million achieved in the reporting period were 4.4% above the previous year's level of €212.9 million. This increase is attributable in particular to the areas of Pharmacy Automation and Transport Automation. The book-to-bill ratio improved accordingly from 1.10 in 2018 to 1.13 in 2019. The order backlog of €231.4 million as at December 31, 2019, showed an increase year-on-year (December 31, 2018: €216.4 million). EBIT amounted to –€10.0 million, after –€4.7 million in the previous year. This corresponds to an EBIT margin of –4.5% (2018: –2.2%). The decrease is due in part to one-off effects. In addition, deteriorations in ongoing customer projects and increased R&D expenditure also had an impact on earnings. Swisslog Healthcare continued to invest in software developments and is expanding its product portfolio in order to strengthen its customer base.

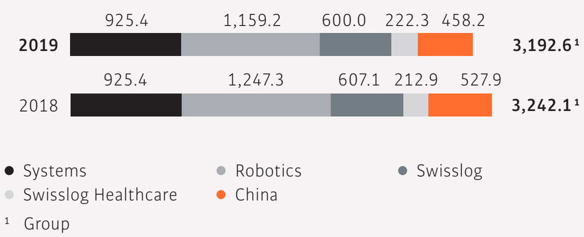
China

In 2019, the China segment posted orders received amounting to €456.4 million. This represents a substantial decline of 14.8% on the previous year's value (2018: €535.9 million). In China, the reluctance of customers to place orders due to the developments in trade politics and the global uncertainties can be clearly felt, particularly in the automotive and electronics industries. Sales revenues fell by 13.2% from €527.9 million to €458.2 million as a result of the lower volume of orders received. The book-to-bill ratio remained stable at 1.00 in 2019 (2018: 1.02). The order backlog dropped from €282.9 million as at December 31, 2018 to €229.2 million as at December 31, 2019. EBIT amounted to €3.6 million in the past year (2018: –€5.4 million). This corresponds to an EBIT margin of 0.8% (2018: –1.0%). Despite the difficult general conditions, the margin showed a small improvement year-on-year and was slightly positive at the end of the year. This increase is partly attributable to the positive effects of the change of consolidation method in the first quarter of 2019. One Chinese subsidiary was deconsolidated and conversely a 50% at-equity investment was recognized. The reluctance of customers to place orders had a negative impact on the margin development.

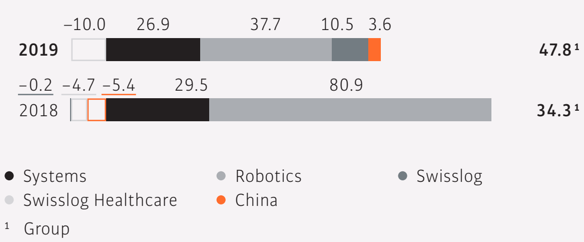
Orders received
in € millions



Sales revenues
in € millions



EBIT
in € millions



Financial position and performance

Summary

At the beginning of the 2019 fiscal year, KUKA's Executive Board adopted a comprehensive immediate action package to position the company for the long term and guide it onto a sustainable, profitable growth course. The program covers four key areas: an efficiency program focusing on indirect areas such as administration, purchasing, sales and project management, a German-Chinese task force as a driving force behind the Chinese joint ventures and the development of specific products for the Asian market, a focus on investments in research & development (R&D) with shorter development cycles, and a more customer-focused and less centralized organizational structure. In the past financial year, the efficiency program achieved savings in the three-digit million euro range. This also included cutting a total of 350 full-time jobs at the Augsburg location. The organizational structure – KUKA Business Organization (KBO) – was fine-tuned over the past financial year with the aim of improving global collaboration and placing an even stronger focus on customers. The new structure comprises five business segments – Systems, Robotics, Swisslog, Swisslog Healthcare and China. The previous year's figures have also been adapted to the new segment structure.

Particularly in the second half-year, the cooling of the global economy had a negative impact on business development. The automotive and electronics focus markets were particularly affected by this, as well as the Europe and China regions. In addition, there were further costs resulting from existing orders and the need for restructuring a subdivision. For these reasons, it was necessary to adjust the existing sales revenue forecast of around €3.3 billion and an EBIT margin of around 3.5% before final evaluation of the reorganization expenditure. KUKA Group now anticipated sales revenues of around €3.2 billion and an EBIT margin above the previous year's level of 1.1%, including all reorganization expenditure. KUKA was able to maintain the previous year's level despite the difficult general conditions.

After three years of negative free cash flow, a positive figure was achieved again for the first time in the year under review. KUKA nonetheless kept up its ongoing investments, as these constitute the basis of KUKA's innovative strength. In the operating business, the optimization measures to strengthen trade working capital took effect.

The order backlog of €2.0 billion (2018: €2.1 billion) indicates good capacity utilization in the 2020 fiscal year.

Despite difficult economic conditions and declining sales and new orders, KUKA Group's earnings before interest and taxes increased to €47.8 million (2018: €34.3 million). In absolute terms, this represents an increase of €13.5 million, corresponding to 39.4%. The EBIT margin was up to 1.5% from 1.1% in the previous year. In the Systems business segment, EBIT fell from €29.5 million in 2018 to €26.9 million in 2019, corresponding to a decrease of 8.8%. The cost allocations from restructuring a sub-segment within the Robotics business segment had a negative impact on EBIT, resulting in an EBIT of €37.7 million in the Robotics segment (2018: €80.9 million). This led to an EBIT margin of 3.3% (2018: 6.5%). On the other hand, the EBIT was substantially improved in the Swisslog segment. It rose from –€0.2 million in 2018 to €10.5 million in 2019. The EBIT margin developed accordingly from 0.0% in 2018 to 1.8% in 2019. In the Swisslog Healthcare segment, EBIT fell to –€10.0 million (2018: –€4.7 million), resulting in an EBIT margin of –4.5% (2018: –2.2%). The China business segment recorded an increase in EBIT of €9.0 million from –€5.4 million in 2018 to €3.6 million in 2019. This corresponds to an EBIT margin of 0.8% in 2019 after –1.0% in the previous year. Overall, the net assets, financial position and performance of the Group were satisfactory in the year under review.

Earnings

The volume of orders received for the 2019 fiscal year amounting to €3,190.7 million (2018: €3,305.3 million) reflects the difficult economic situation and the reluctance of customers to place orders. With sales revenues of €3,192.6 million in the 2019 fiscal year, the forecast adjusted in September 2019 was achieved. Sales revenues were nevertheless slightly down by €49.5 million on the previous year (2018: €3,242.1 million). The order backlog also fell compared to the previous year from €2,055.7 million in 2018 to €1,967.4 million in 2019; this is still a stable value and corresponds to approx. 62% of annual revenues.

in € millions	2015	2016	2017	2018	2019
Orders received	2,838.9	3,422.3	3,614.3	3,305.3	3,190.7
Order backlog	1,639.0	2,048.9	2,157.9	2,055.7	1,967.4
Sales revenues	2,965.9	2,948.9	3,479.1	3,242.1	3,192.6
EBIT	135.6	127.2	102.7	34.3	47.8
in % of revenues	4.6	4.3	3.0	1.1	1.5
in % of capital employed (ROCE)	20.0	16.2	10.9	2.9	3.5
Growth investment and one-off effects [1]	–	28.0	31.9	48.7	–
EBIT adjusted [1]	135.6	155.2	134.6	83.0	47.8
EBIT adjusted [1] in % of revenues	4.6	5.3	3.9	2.6	1.5
EBIT adjusted [1] in % of capital employed (ROCE)	20.0	19.8	14.2	7.0	3.5
EBITDA	259.1	205.3	180.2	121.2	176.5
in % of revenues	8.7	7.0	5.2	3.7	5.5
Growth investments and one-off effects [1]	–	28.0	31.9	48.7	–
EBITDA adjusted [1]	259.1	233.3	212.1	169.9	176.5
EBITDA adjusted [1] in % of revenues	8.7	7.9	6.1	5.2	5.5
(Average) capital employed	676.8	783.0	950.4	1,185.0	1,374.3
Employees (Dec. 31) [2]	12,300	13,188	14,256	14,235	14,014

[1] 2016: one-off effect due to the takeover bid by Midea Group
2017: growth investments
2018: growth investments and reorganization expenditure
2019: no one-off effects

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

With effect from January 1, 2019, the new KUKA Business Organization (KBO) comprises five business segments: Systems, Robotics, Swisslog, Swisslog Healthcare and China. Key elements, such as the systematic customer centricity, were retained and transferred to the new structure. Additionally, each business segment has a different focus in order to achieve targeted development of KUKA Group's market and competitive position. The focus in all cases is naturally on the customer. Furthermore, corporate responsibility is more strongly anchored within the business segments. A description of the new segment structure can be found in the section "Fundamental information about the Group" (from page 22 onwards). Based on a management approach, certain Chinese companies are reported both in the China business segment and at Swisslog or Swisslog Healthcare. Further details can be found in the notes.

In the Systems business segment, sales revenues totaled €925.4 million and thus remained at exactly the same level as the previous year (2018: €925.4 million). The volume of orders received totaling €858.0 million was 10.6% below that for fiscal 2018, which totaled €959.8 million. The order backlog also decreased, namely by €98.9 million from €713.2 million in 2018 to €614.3 million in 2019. EBIT fell slightly to €26.9 million, corresponding to an EBIT margin of 2.9% (2018: €29.5 million; 3.2%). The difficult order situation and the deteriorations in existing projects had a negative impact on earnings.

Sales revenues in the Robotics segment fell in 2019 to €1,159.2 million, corresponding to a slight decrease of €88.1 million or 7.1% on the previous year (2018: €1,247.3 million). Not only sales revenues, but also the volume of orders received exceeded the billion euro mark. The latter totaled €1,037.1 million in the past fiscal year and was thus

13.3% down on the previous year (2018: €1,196.5 million), but still at a high level. The order backlog fell from €395.9 million in 2018 to €275.8 million in 2019. EBIT also declined, to €37.7 million (2018: €80.9 million), resulting in an EBIT margin of 3.3% (2018: 6.5%). The lower revenue volume, the economic development of the global robotics market and the cost allocations resulting from restructuring a subdivision of Robotics had a negative impact on earnings in the low double-digit millions. In the previous year, a double-digit million euro amount from the sale of shareholdings in companies had a positive effect on EBIT. The subdivision supplies automated production solutions, such as cells and special machines, worldwide and is currently undergoing restructuring.

At Swisslog, sales revenues decreased slightly in 2019 by 1.2% to €600.0 million (2018: €607.1 million). It must be noted here that since 2019, the business in China has been included only proportionately in the earnings and no longer in the sales revenues on account of the changed control situation. Orders received rose, however, by 24.8% or €149.1 million to €750.2 million (2018: €601.1 million). This was due, among other things, to a number of major orders. The order backlog developed similarly, growing from €531.6 million in 2018 to €653.9 million in 2019. This corresponds to an increase of 23.0%. EBIT also rose sharply, amounting to €10.5 million in the year under review (EBIT margin: 1.8%) after a negative prior-year value of –€0.2 million (EBIT margin: 0.0%). Swisslog benefited from high global customer demand in its focus markets, which had a positive impact on EBIT.

The Swisslog Healthcare division recorded a slight year-on-year increase of 4.4% in revenues (2019: €222.3 million; 2018: €212.9 million). The volume of orders received and the order backlog also increased compared to the previous year. The former amounted to €251.3 million and was thus €16.8 million or 7.2% higher than the figure of €234.5 million for fiscal 2018. The order backlog rose by €15.0 million to €231.4 million as at December 31, 2019 (2018: €216.4 million). EBIT fell from –€4.7 million to –€10.0 million, corresponding to an EBIT margin of –2.2% and –4.5% respectively. The decrease is primarily attributable to one-off effects in the low double-digit millions. Here, deteriorations in ongoing customer projects and increased R&D expenditure also had an impact on earnings. Swisslog Healthcare continued to invest in software developments and is expanding its product portfolio in order to strengthen its customer base.

The uncertainties in trade politics and the economic slowdown are having a negative impact on sales revenues in the China business segment, which fell from €527.9 million in 2018 to €458.2 million in 2019. The reluctance of customers to place orders had a negative impact on the margin development. At the same time, orders received fell by 14.8% to €456.4 million (2018: €535.9 million) and the order backlog amounted to €229.2 million, representing a decrease of €53.7 million (2018: €282.9 million). EBIT, by contrast, rose from –€5.4 million to €3.6 million, corresponding to an EBIT margin of 0.8% (2018: –1.0%). Despite the difficult general conditions, the margin showed a small improvement year-on-year and was slightly positive at the end of the year. This increase is partly attributable to the positive effects of the change of consolidation method in the first quarter of 2019, amounting to a low double-digit million euro sum. One Chinese subsidiary was deconsolidated and conversely a 50% at-equity investment was recognized.

KUKA Group generated gross earnings of €677.0 million during the year under review, down 6.7% on the previous year's figure (2018: €725.9 million). The gross margin fell from 22.4% to 21.2%, which was due to the almost unchanged cost of sales in both fiscal years. The gross margin in the Swisslog business segment rose from 17.1% in 2018 to 18.6% in 2019. The other segments had to report a year-on-year decline in gross margin (Systems: 2019: 10.6%; 2018: 12.5%; Robotics: 2019: 31.2%; 2018: 31.5%; Swisslog Healthcare: 2019: 32.9%; 2018: 33.7% and China: 2019: 8.3%; 2018: 10.3%).

The key figures for the individual business segments are shown below:

Key figures – Systems

in € millions	2018	2019
Orders received	959.8	858.0
Order backlog	713.2	614.3
Sales revenues	925.4	925.4
EBIT	29.5	26.9
in % of revenues	3.2%	2.9%
in % of capital employed (ROCE)	11.3%	8.9%
EBITDA	37.8	45.2
in % of revenues	4.1%	4.9%
Capital employed	260.7	301.1
Employees (Dec. 31)	3,112	3,208

Key figures – Robotics

in € millions	2018	2019
Orders received	1,196.5	1,037.1
Order backlog	395.9	275.8
Sales revenues	1,247.3	1,159.2
EBIT	80.9	37.7
in % of revenues	6.5%	3.3%
in % of capital employed (ROCE)	21.9%	8.8%
EBITDA	143.6	83.1
in % of revenues	11.5%	7.2%
Capital employed	369.7	430.7
Employees (Dec. 31)	5,957	5,502

Key figures – Swisslog

in € millions	2018	2019
Orders received	601.1	750.2
Order backlog	531.6	653.9
Sales revenues	607.1	600.0
EBIT	–0.2	10.5
in % of revenues	0.0%	1.8%
in % of capital employed (ROCE)	–0.2%	8.6%
EBITDA	16.2	33.7
in % of revenues	2.7%	5.6%
Capital employed	100.5	122.7
Employees (Dec. 31)	1,975	2,168

Key figures – Swisslog Healthcare

in € millions	2018	2019
Orders received	234.5	251.3
Order backlog	216.4	231.4
Sales revenues	212.9	222.3
EBIT	–4.7	–10.0
in % of revenues	–2.2%	–4.5%
in % of capital employed (ROCE)	–4.2%	–6.6%
EBITDA	8.7	4.6
in % of revenues	4.1%	2.1%
Capital employed	112.3	152.5
Employees (Dec. 31)	931	1,159

Key figures – China

in € millions	2018	2019
Orders received	535.9	456.4
Order backlog	282.9	229.2
Sales revenues	527.9	458.2
EBIT	–5.4	3.6
in % of revenues	–1.0%	0.8%
in % of capital employed (ROCE)	–6.0%	2.3%
EBITDA	–0.4	14.4
in % of revenues	–0.1%	3.1%
Capital employed	90.2	155.6
Employees (Dec. 31)	1,514	1,382

KUKA Group's functional costs, which are made up of administration, sales and research & development expenses, fell by €76.0 million in the 2019 fiscal year to €642.5 million (2018: €718.5 million). The ratio of functional costs to revenues declined accordingly from 22.5% in 2018 to 20.1% in 2019. This indicates initial successes from the implementation of the efficiency program launched in January 2019.

In fiscal 2019, selling expenses decreased by €28.3 million or 8.8% to €291.6 million (2018: €319.9 million). The reduction in costs is also reflected in the reduced number of sales employees. As at December 31, 2019, 1,614 employees (2018: 1,712 employees) were working in this area. Capacities have been adjusted and areas of expertise bundled as part of the efficiency program. Nevertheless, customer centricity is a key element of the new organizational structure, even though the selling expenses ratio dropped from 9.9% in 2018 to 9.1% in 2019.

The projects initiated in previous years to harmonize, standardize and optimize processes, combined with the savings from the efficiency program, have led to a reduction of €56.3 million in administrative expenses (2019: €190.4 million; 2018: €246.7 million). Additionally, expenditure for consultancy services also fell, resulting in an overall ratio of administrative expenses to sales of 6.0% (2018: 7.6%).

As an innovative technology enterprise, KUKA Group is continuously investing in future-oriented technologies that are incorporated into new products and solutions. This is intended to ensure the long-term success of the company. Compared with the previous year, research & development expenses increased once again in the year under review, totaling €160.5 million (2018: €151.9 million). The increase is due to the planned, higher personnel expenditure and the amortization of R&D expenditure capitalized in the previous year. Please refer to the research and development section of this management report for further information and details.

In order to be able to implement a sustainable and long-term research and development strategy, the corresponding personnel conditions must be created. As at the balance sheet date of December 31, 2019, 1,264 employees (December 31, 2018: 1,251 employees) were employed in research and development. This corresponds to 9.0% of the total workforce (2018: 8.8%).

In fiscal 2019, the capitalized costs for new developments totaled €30.2 million (2018: €36.4 million). These costs, which are primarily incurred in the area of research and development, will be reported as scheduled amortization in subsequent financial statements. Amortization increased from €15.6 million in 2018 to €17.2 million in 2019. The capitalization ratio fell from 21.1% to 17.4% in the year under review due to lower capitalization.

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

Other operating income exceeded expenditure by €16.9 million (2018: €29.2 million). Other operating income (2019: €30.7 million; 2018: €45.8 million) mainly includes income from the change in the consolidation method of a Chinese subsidiary which has been deconsolidated and subsequently accounted for at equity. In the previous year, income was also affected by the sale of the two companies KBee AG, Munich, and connyun GmbH, Karlsruhe. Income from subsidies decreased (2019: €0.7 million; 2018: €1.6 million) while income from the reimbursement of claims increased (2019: €1.7 million; 2018: €0.3 million). Other operating expenses were down slightly by €2.8 million from €16.6 million in 2018 to €13.8 million in 2019 and include expenditure for other taxes (2019: €8.2 million; 2018: €8.4 million).

EBIT margin of 1.5%

in € millions	2015	2016	2017	2018	2019
Group	135.6	127.2	102.7	34.3	47.8
in % of sales revenues	4.6%	4.3%	3.0%	1.1%	1.5%

Earnings before interest and taxes (EBIT) rose by €13.5 million to €47.8 million in fiscal 2019 (2018: €34.3 million), resulting in an EBIT margin of 1.5% (2018: 1.1%). The increase in EBIT is attributable in part to the success of the efficiency program, which includes cost savings on the one hand and the focusing of research and development on the other.

EBIT in the Systems business segment fell by €2.6 million from €29.5 million in 2018 to €26.9 million in 2019. The decline is attributable to the deteriorations in individual projects. The resulting EBIT margin was 2.9% (2018: 3.2%).

The Robotics business segment also recorded a reduction in EBIT. After €80.9 million in the 2018 fiscal year, an EBIT of €37.7 million has now been achieved, corresponding to an EBIT margin of 6.5% in 2018 and 3.3% in 2019. On the one hand, this decline is due to expenditure in conjunction with the restructuring in this business segment. On the other, EBIT was still positively impacted in the previous year by the one-off effect from the sale of KBee AG, Munich. If both one-off effects are eliminated, the EBIT of the past fiscal year would be higher than in 2018.

At Swisslog, one factor behind the significant increase in EBIT to €10.5 million (2018: −€0.2 million) was high demand in the focus markets. The EBIT margin rose accordingly to 1.8% (2018: 0.0%).

As in the previous year, Swisslog Healthcare recorded a negative EBIT. After −€4.7 million in 2018 (EBIT margin: −2.2%), an EBIT of −€10.0 million (EBIT margin: −4.5%) now had to be accepted. One-off effects, additional expenses for project finalizations and increased research and development expenditure for software developments that are to be incorporated into future products for pharmacy automation had a negative impact on EBIT.

In the China business segment, EBIT rose from −€5.4 million in fiscal 2018 to €3.6 million in the year under review, while the EBIT margin also increased from −1.0% in fiscal 2018 to 0.8% in 2019. The one-off effect from the change of consolidation method had a positive impact.

in € millions	2018	2019
Systems	29.5	26.9
in % of sales revenues	3.2%	2.9%
Robotics	80.9	37.7
in % of sales revenues	6.5%	3.3%
Swisslog	−0.2	10.5
in % of sales revenues	0.0%	1.8%
Swisslog Healthcare	−4.7	−10.0
in % of sales revenues	−2.2%	−4.5%
China	−5.4	3.6
in % of sales revenues	−1.0%	0.8%

Depreciation and amortization rose by €41.8 million in the 2019 fiscal year from €86.9 million to €128.7 million. With the introduction of the new IFRS 16 leases standard, €36.8 million (2018: €0.0 million) was recognized in amortization of capitalized leases. The depreciation and amortization of €128.7 million breaks down into €16.5 million (2018: €8.2 million) for the Systems business segment, €42.4 million (2018: €29.9 million) for Robotics, €17.8 million (2018: €11.2 million) for the Swisslog division, €11.1 million (2018: €4.9 million) for Swisslog Healthcare, and €10.8 million (2018: €5.0 million) for the China segment.

EBITDA (earnings before interest, taxes, depreciation and amortization) thus rose overall by €55.3 million or 45.6% to €176.5 million (2018: €121.2 million). Group EBITDA is presented below:

in € millions	2015	2016	2017	2018	2019
Group	259.1	205.3	180.2	121.2	176.5
in % of sales revenues	8.7%	7.0%	5.2%	3.7%	5.5%

The following table shows the development of EBITDA at segment level:

in € millions	2018	2019
Systems	37.8	45.2
in % of sales revenues	4.1%	4.9%
Robotics	143.6	83.1
in % of sales revenues	11.5%	7.2%
Swisslog	16.2	33.7
in % of sales revenues	2.7%	5.6%
Swisslog Healthcare	8.7	4.6
in % of sales revenues	4.1%	2.1%
China	−0.4	14.4
in % of sales revenues	−0.1%	3.1%

Financial result up considerably on previous year

In the year under review, the net expenses and income in the financial result equated to an income of €6.6 million. Compared with the previous year, this represents an increase of €6.0 million (2018: €0.6 million income).

Interest income of €28.6 million in fiscal 2019 (2018: €14.1 million) is significantly higher than the figure for the previous year. For one thing, interest income was generated from leases of KUKA Toledo Production Operations LLC, Toledo/USA as the lessor. Beyond that, the joint venture established in the past fiscal year received interest income on bank balances. Foreign currency gains and losses in connection with financial assets led to a surplus of €1.0 million (2018: €3.0 million income), which is allocated to the interest income.

Interest expense of €19.9 million in 2019 was up €6.5 million on the previous year (2018: €13.4 million). At €5.6 million (2018: €0.0 million), interest expenses in connection with the introduction of the IFRS 16 leases standard accounted for a significant proportion of this figure. In addition, interest expenses of €8.7 million (2018: €5.2 million) were incurred for the promissory note loan placed in October 2015 and the new US dollar assignable loan. The net interest expenditure for pensions increased to €2.0 million (2018: €1.7 million). Expenditure for sureties and guarantees amounted to €1.7 million (2018: €1.8 million).

A value adjustment for a loan also had a negative impact of €2.1 million (2018: €0.1 million) on the financial result.

EBT (earnings before taxes) rose accordingly to €54.4 million (2018: €34.9 million), up €19.5 million on the previous year. The tax expense amounted to €36.6 million in the year under review (2018: €18.3 million). This corresponds to a tax rate of 67.3% (2018: 52.4%) – an increase on the previous year. The effective tax rate is mainly influenced by adjustments in the valuation of deferred tax assets; tax subsidies have an opposite effect.

Proposed dividend of €0.30 per share*

KUKA Group generated earnings after taxes of €17.8 million (2018: 16.6 million) and once again demonstrated a positive year-on-year trend. The development was positive for the ninth year running, even though the economic market environment for KUKA Group is challenging. Earnings per share amounted to €0.24 in 2019 (2018: €0.32).

The Executive Board is thus proposing to the Annual General Meeting that a dividend of €0.30 per share be paid for fiscal 2019.

* See Supervisory Board report, page 9

Group income statement (condensed)

in € millions	2015	2016	2017	2018	2019
Sales revenues	2,965.9	2,948.9	3,479.1	3,242.1	3,192.6
EBIT	135.6	127.2	102.7	34.3	47.8
EBIT adjusted [1]	135.6	155.2	134.6	83.0	47.8
EBITDA	259.1	205.3	180.2	121.2	176.5
EBITDA adjusted [1]	259.1	233.3	212.1	169.9	176.5
Financial result	–7.4	–4.9	–9.2	0.6	6.6
Taxes on income	–39.3	–36.1	–5.3	–18.3	–36.6
Earnings after taxes	86.3	86.2	88.2	16.6	17.8

[1] 2016: one-off effect due to the takeover bid by Midea Group
2017: growth investments
2018: growth investments and reorganization expenditure
2019: no one-off effects

Financial position

Principles and goals of financial management

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

Group financing and cash pooling

The objective of KUKA Group's financing policy is to ensure that the Group has sufficient liquidity reserves at all times, in the form of liquid assets and non-utilized, committed long-term credit lines as well as sufficient guarantee facilities, in order to be able to cover the operating and strategic financing requirements of the Group companies and also to have sufficient reserves as a buffer against unforeseen events. The financing requirements of the Group companies are calculated on the basis of the multi-year budget and financial projections and rolling liquidity forecasts over twelve months, each of which includes all the relevant companies consolidated in the Group accounts.

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

Components of the financing structure

Promissory note loans

KUKA AG issued unsecured promissory note loans with a total volume of €250.0 million in two tranches on October 9, 2015. Tranche 1 has a volume of €142.5 million with an original term to maturity of five years (maturing October 2020); tranche 2 has a volume of €107.5 million and an original term to maturity of seven years (maturing October 2022). The promissory note loans carry interest coupons of 1.15% for tranche 1 and 1.61% for tranche 2.

In order to finance the construction of a new manufacturing facility under the terms of a pay-on-production contract of KUKA Toledo Production Operations LLC, Toledo/Ohio, USA, this company issued USD assignable loans in 2018 with a total volume of USD 150.0 million in several maturity tranches, underwritten by KUKA AG: tranche 1 has a volume of USD 10.0 million with a term to maturity of two years (maturing August 2020), tranche 2 has a volume of USD 90.0 million with a term to maturity of 3½ years (maturing February 2022), and tranche 3 has a volume of USD 50.0 million with a term to maturity of five years (maturing August 2023). The interest rate of the tranches is linked to the 3-month USD LIBOR rate and is thus variable. Margins on this reference interest rate depend on the term and are 85, 105 and 140 basis points respectively. As at the reporting date, the interest rates on the tranches were 4.15%, 4.35% and 4.70% p.a. The funds from this assignable loan were received on August 10/September 10, 2018.

Syndicated loan agreement

On February 1, 2018, KUKA AG concluded a syndicated loan agreement with a consortium of banks for a volume of €520.0 million. The agreement includes a surety and guarantee line ("guaranteed credit line") in the amount of €260.0 million and a working capital line ("cash line"), which can also be used for sureties and guarantees, likewise in the amount of €260.0 million.

The initial term of the loan agreement was five years until February 1, 2023 and contained two contractually agreed one-year extension options (5+1+1). With the approval of all banks for the first agreed extension option in 2018 and the second one in 2019, the term was extended in 2018 and 2019 by one year in each case. The loan agreement now terminates in February 2025. The syndicated loan agreement remains unsecured as before and contains only the customary equal treatment clauses and negative pledges. The agreed financial covenants with regard to thresholds for leverage (net financial liabilities/EBITDA) and interest coverage (EBITDA/net interest expense) remain unchanged.

Guaranteed credit lines

In addition to the guarantee lines and the cash facilities which can be used for guarantees under the syndicated loan agreement, there were also further guarantee line framework agreements in 2019 to support operating business. The guarantee facilities agreed bilaterally with banks and surety companies had a commitment volume of €153.0 million as at December 31, 2019 (2018: €118.0 million). In total at December 31, 2019, KUKA therefore had credit lines to utilize for sureties and guarantees in an amount of €673.0 million (2018: €638.0 million). These were utilized in the amount of €271.3 million (2018: €311.3 million).

Asset-backed securities program/sale of receivables

The ABS program with a volume of €25.0 million still in existence at the last balance sheet date expired in January 2019 as contractually agreed. As at the 2018 balance sheet date, KUKA Deutschland GmbH had utilized this structured receivables sales program in the amount of €14.0 million.

As part of working capital management, KUKA sold trade receivables totaling approximately €41.0 million in December 2019.

Inter-company loan

In December 2019, KUKA AG signed an inter-company loan agreement for the advance refinancing of the tranches of the existing promissory note loans due in August and October 2020 (US dollar assignable loan from 2018: USD 10.0 million, euro promissory note loans from 2015: €142.5 million) for a loan volume of €150.0 million with Midea International Corporation Company Limited, Hong Kong, a 100% subsidiary of Midea Group. At the same time, Midea International Corporation Company Limited declared in a subordination agreement with the syndicate banks of KUKA AG's syndicated loan agreement that its receivables arising from this loan agreement are deeply subordinated. KUKA AG received the loan amount on December 20, 2019. Repayment is due on June 20, 2025, i.e. the term is 5½ years. The interest rate applicable to the inter-company loan is 0.85% p.a.

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

1) The promissory note loans with a nominal value of €250.0 million issued in October 2015 and maturing in October 2020 and October 2022.
2) The assignable loans with a nominal value of USD 150.0 million issued in August/September 2018 and maturing in August 2020, February 2022 and August 2023.
3) The inter-company loan concluded in December 2019 with a nominal value of €150.0 million and maturing in June 2025.
4) The €520.0 million syndicated loan agreement signed in February 2018 with a term extending to February 2025. Cash drawings up to a volume of €260.0 million are possible under this agreement.
5) Bilateral agreements with banks and surety companies for surety and guarantee lines in the amount of €153.0 million.

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

Assessment by rating agencies

Since Moody's withdrew its rating in January 2019 at KUKA AG's request, KUKA AG is now rated only by the rating agency Standard & Poor's. In August 2019, Standard & Poor's confirmed KUKA AG's investment grade rating of BBB– with a stable outlook. Following KUKA AG's ad hoc announcement on September 24, 2019, in which the expectations for sales revenues and EBIT margin in 2019 were reduced, the rating agency changed the outlook to "negative" on September 30, 2019, but confirmed the investment-grade rating at an unchanged BBB–.

Condensed Group cash flow statement

in € millions	2015	2016	2017	2018	2019
Cash earnings	260.8	203.9	184.6	129.0	167.1
Cash flow from operating activities	169.2	–9.6	92.0	–48.2	214.5
Cash flow from investment activities	–73.5	–97.2	–227.7	–165.5	–193.8
Free cash flow	95.7	–106.8	–135.7	–213.7	20.7

Cash earnings increased due to higher income taxes and the first-time depreciation of right-of-use assets in accordance with IFRS 16. They amounted to €167.1 million (2018: €129.0 million). The cash earnings are amongst other things an indicator derived from the earnings after taxes, adjusted for income taxes (excluding deferred taxes), net interest, cash-neutral depreciation on tangible assets and right-of-use assets pursuant to IFRS 16, together with other non-cash income and expenses (including deferred taxes).

Cash flow from current business operations of KUKA Group rose significantly from –€48.2 million in 2018 to €214.5 million in 2019. This high increase of €262.7 million is primarily attributable to the positive change in current assets and liabilities.

After trade working capital rose continuously to €566.3 million at the end of fiscal 2018, a project was set up within KUKA Group to monitor and optimize the trade working capital. A reduction of €56.2 million as at the end of fiscal 2019 demonstrated the initial success of this project. Trade working capital amounted to €510.1 million on the balance sheet date. Trade receivables and receivables from contract assets decreased by €4.0 million (2019: €905.0 million; 2018: €909.0 million), and inventories also fell by €122.3 million to €344.5 million (2018: €466.8 million), reflecting the optimization of the procurement measures. Trade payables and contract liabilities fell by €70.1 million from €809.5 million in 2018 to €739.4 million in 2019.

Overall, trade working capital has developed as follows:

Trade working capital

in € millions	2015	2016	2017	2018	2019
Inventories[1]	297.8	318.8	387.4	466.8	344.5
Trade receivables and contract assets	658.3	888.9	923.8	909.0	905.0
Trade payables and contract liabilities[1]	691.5	778.6	857.3	809.5	739.4
Trade working capital	**264.6**	**429.1**	**453.9**	**566.3**	**510.1**

[1] For reasons of better comparability, the trade working capital KPI has been adjusted for the previous year's figures and the advance payments received are shown under contract liabilities.

Capital expenditure in KUKA Group

As a high-tech enterprise, KUKA Group invests continuously and systematically. Compared with the previous year, however, the volume of investment in intangible and tangible fixed assets fell to €151.1 million (2018: €295.4 million). Construction of the production plant for the finance lease (KTPO) has been completed, as have the new production facilities at the Augsburg location and in Shunde, China. In the past fiscal year, investments were made in the education center at the Augsburg location.

The carrying amount of the company's own development work and internally generated intangible assets totaled €103.1 million (2018: €94.2 million). For more detailed information on the development priorities, please refer to the section "Research and development".

Investments in intangible assets and property, plant and equipment

in € millions	2015	2016	2017	2018	2019
Group	107.0	99.6	138.8	295.4	151.1

In the area of intangible assets, investments in fiscal 2019 totaled €39.6 million (2018: €59.7 million), including €8.0 million (2018: €18.7 million) for licenses and other rights, €30.2 million (2018: €36.4 million) for internally generated software and development costs, and €1.3 million for advance payments (2018: €3.9 million).

Investments in tangible assets amounted to €111.5 million in 2019 (2018: €235.7 million) and were attributable to land, property rights and buildings (including buildings on third party land) (2019: €24.9 million; 2018: €37.9 million), technical plant and machinery (2019: €20.3 million; 2018: €17.5 million), other plant/operating and office equipment (2019: €20.6 million; 2018: €19.1 million) and advances paid and construction in progress (2019: €45.7 million; 2018: €161.2 million). In particular, the decline in the area of advances paid and assets under construction indicates that the investments from previous years have largely been completed and are now being used. These include the production facilities in Augsburg and Shunde, China, as well as the production plant used in conjunction with the finance lease at KTPO in the USA. Buildings still under construction include the education center at the Augsburg location.

Of the total investments of €151.1 million (2018: €295.4 million), €24.3 million (2018: €143.0 million) was accounted for by the Systems business segment. The significant reduction compared to the previous year is due to the start of production at KTPO in April 2019 (for further details, see note 11 "Leases"). Investments in the Robotics division amounted to €40.1 million after €49.1 million in the previous year. Investments were made in technical equipment, a new building at the Augsburg site, a canteen at the site in Hungary, and the optimization of production including operating and office equipment. The largest share within Robotics is attributable to company-produced and capitalized assets. In the Swisslog segment, investments totaled €12.0 million and were thus almost at the previous year's level of €12.5 million. More than half of the investments were made in intangible assets. This involves the development and optimization of customer software used in conjunction with automation solutions. At €12.6 million, investments of the Swisslog Healthcare business segment were €1.1 million higher than in the previous year (2018: €11.5 million). The majority of investments are accounted for by future-oriented solutions and further developments of existing products for hospitals. In the China segment, the €13.8 million (2018: €41.9 million) that was invested was spent on new plant and office equipment, among other things. The decline is due to the fact that the previous year's figure included the new production plant in Shunde, China. Other investments rose from €38.1 million in 2018 to €48.4 million in 2019. A significant proportion is attributable to advances paid and assets under construction, for example for the education center at the Augsburg location and the production building in Augsburg completed in the year under review. A refrigeration plant was also installed and the energy duct is being extended. The investment volume by segment is presented below:

Investments in intangible assets and property, plant and equipment

in € millions	2018	2019
of which Systems	143.0	24.3
of which Robotics	49.1	40.1
of which Swisslog	12.5	12.0
of which Swisslog Healthcare	11.5	12.6
of which China	41.9	13.8
of which others	38.1	48.4

The (subsequent) payments for acquisitions of consolidated companies, which were also carried out in the previous year, and other investments during the past fiscal year came to a total of €39.1 million (2018: €23.0 million) and were subdivided as follows:

Company acquisitions

in € millions	2018	2019
Company acquisitions		
Visual Components	–	1.9
Device Insight GmbH	–	18.2
UTICA Enterprises, Shelby Township, Michigan/USA	11.4	6.2
Mor-Tech Design Inc.; Mor-Tech Manufacturing Inc., Michigan/USA	9.4	–
Other	2.2	0.3
Total	**23.0**	**26.6**
Other participations		
Pharmony	–	1.2
Servotronix	–	11.3
Total		**12.5**
Total payments	**23.0**	**39.1**

Cash inflows for investments in financial assets and at-equity investments mainly comprise the capital contributions of Midea's participation in the so-called joint ventures.

Positive free cash flow

Cash flow from current business operations (2019: €214.5 million; 2018: –€48.2 million) and cash flow from investment activities (2019: –€193.8 million; 2018: –€165.5 million) together result in a positive free cash flow of €20.7 million. The free cash flow of –€213.7 million in the previous year was primarily driven by higher investment activities as well as an increase in trade working capital.

Positive cash flow from financing activities

Cash flow from the financing activities of KUKA Group amounted to €87.8 million after €89.6 million in the previous year. At €11.9 million, the dividend payments are below the prior-year figure of €19.9 million. This corresponds to a dividend per share of €0.30 (2018: €0.50 per share). In the last quarter of the 2019 fiscal year, KUKA Group received a payment from a loan granted by parent company Midea. The increase in interest paid (2019: –€18.6 million; 2018: –€11.3 million) and the repayment of leases (2019: –€33.4 million; 2018: €0.0 million) had a negative impact on cash flow from financing activities.

Group net liquidity

in € millions	2018	2019
Cash and cash equivalents	478.6	584.8
Current financial liabilities	5.2	152.6
Non-current financial liabilities	380.5	382.0
Group net liquidity	**92.9**	**50.2**
Cash and guarantee facilities from Syndicated Senior Facilities Agreement	520.0	520.0
Guarantee facility from banks and surety companies	118.0	153.0
ABS program line	25.0	–

At €50.2 million, net liquidity at the end of fiscal 2019 was lower than in the previous year (2018: €92.9 million). On the one hand, cash and cash equivalents increased from €478.6 million in 2018 to €584.8 million in 2019. At the same time, KUKA Group received a loan from Midea Group for €150.0 million, which led to an increase in financial liabilities. Current financial liabilities grew due to the reclassification of the first tranche of the promissory note loan, which has to be repaid in fiscal 2020.

Net worth

As at December 31, 2019, non-current assets amounted to €1,384.4 million and were thus €194.0 million higher than at December 31, 2018. With the introduction of the new leases standard IFRS 16, right-of-use assets are capitalized in the balance sheet. This extended the non-current assets in the balance sheet by €134.0 million as at January 1, 2019. With the start of the finance lease at KTPO, the production facility, which had been allocated to tangible assets, was reclassified as a finance lease receivable. Tangible assets fell accordingly from €493.7 million as at December 31, 2018 to €366.6 million as at December 31, 2019. Finance lease receivables, by contrast, increased from €1.0 million in 2018 to €152.5 million in 2019 within non-current assets and from €0.6 million as at December 31, 2018 to €29.4 million as at December 31, 2019 within current assets.

Under intangible assets, which totaled €565.5 million (December 31, 2018: €563.9 million), goodwill of €315.3 million (December 31, 2018: €308.7 million) is reported. The amortization of purchase price allocations for acquisitions has an opposite effect of €12.6 million (2018: €13.9 million).

The carrying amount for investments accounted for at equity rose to €34.0 million as at the balance sheet date (December 31, 2018: €13.9 million). This increase mostly resulted from the deconsolidation of a Chinese subsidiary and its simultaneous recognition as an investment accounted for at equity. Financial investments also registered an increase. In the past fiscal year, holdings were acquired in Servotronix Motion Control Ltd. and Pharmony SPRL. As a result, the balance sheet item for financial investments showed a balance of €24.1 million as at December 31, 2019 (December 31, 2018: €8.7 million).

Deferred tax assets amounted to €86.7 million (December 31, 2018: €90.5 million), with €41.9 million being attributable to losses carried forward (2018: €42.6 million).

On the balance sheet date of fiscal 2019, current assets amounted to €2,042.2 million (December 31, 2018: €2,028.1 million), which corresponds to a slight increase of €14.1 million. The level of trade receivables was up on the previous year to €443.5 million (December 31, 2018: €415.1 million). Current receivables from finance leases and other assets and prepaid expenses also increased (December 31, 2019: €152.4 million; December 31, 2018: €130.3 million). Other assets include securities held as current assets with a term of significantly less than one year.

Inventories were reduced and now stand at €344.5 million, and thus €122.3 million lower than the figure of €466.8 million as at December 31, 2018. Cash and cash equivalents increased from €478.6 million as at December 31, 2018 to €584.8 million as at December 31, 2019, due in particular to the loan granted by Midea Group.

Group net assets

in € millions	2015	2016	2017	2018	2019
Balance sheet total	2,381.7	2,543.9	2,640.1	3,218.5	3,426.6
Equity	732.5	840.2	866.6	1,339.6	1,348.6
in % of balance sheet total	30.8%	33.0%	32.8%	41.6%	39.4%
Net liquidity/debt	199.9	113	–45.2	92.9	50.2

The balance sheet total of KUKA Group increased by €208.1 million from €3,218.5 million as at December 31, 2018 to €3,426.6 million as at December 31, 2019. With the introduction of the IFRS 16 leases standard, the balance sheet total as at December 31, 2018 grew by €134.0 million to €3,352.5 million as at January 1, 2019.

Equity ratio of 39.4%

Equity rose from €1,339.6 million as at the balance sheet date in 2018 to €1,348.6 million in 2019. On the one hand, retained earnings decreased from €669.9 million (December 31, 2018) to €659.8 million (December 31, 2019) and, on the other hand, minority interests rose to €278.8 million (December 31, 2018: €259.7 million). The increase of €19.1 million in minority interests is attributable to the investments of Midea Group in the so-called joint ventures controlled by KUKA. Payment of the dividend for the 2018 fiscal year to the shareholders of KUKA AG in the amount of €11.9 million (2018: €19.9 million) reduced equity. Actuarial gains from pension accounting (including related deferred taxes) amounted to €18.2 million (2018: gain of €5.2 million). The recognized foreign exchange effects of €10.9 million (2018: €25.4 million) also had a positive effect on equity. Besides the US dollar, this related to the Swiss franc and Chinese renminbi. The equity ratio fell from 41.6% as at December 31, 2018 to 39.4% as at December 31, 2019. This is related to the introduction of the IFRS 16 leases standard, which led to an extension of the balance sheet and a corresponding decline in the equity ratio.

Deferred tax liabilities fell slightly from €42.4 million in 2018 to €41.8 million in 2019. Financial liabilities amount to a total of €534.6 million as at December 31, 2019 (December 31, 2018: €385.7 million). Current financial liabilities of €152.6 million (December 31, 2018: €5.2 million) now include the current portion of the promissory note loan, the first tranche of which is due in 2020. Non-current financial liabilities amounted to €232.0 million (December 31, 2018: €380.5 million). The loan in the amount of €150.0 million from Midea Group Ltd. is reported under accounts payable to affiliated companies.

The lease liabilities that have to be recognized in the balance sheet since the introduction of IFRS 16 at the start of fiscal 2019 amount to €138.3 million (December 31, 2018: €0.0 million; January 1, 2019: €134.0 million), of which €32.5 million (December 31, 2018: €0.0 million; January 1, 2019: €32.4 million) is current and €105.8 million (December 31, 2018: €0.0 million; January 1, 2019: €101.6 million) is non-current. Non-current liabilities thus total €690.2 million as at the 2019 balance sheet date (December 31, 2018: €569.2 million; January 1, 2019: €670.8 million).

The current portion of liabilities also increased as at December 31, 2019, amounting to €1,387.8 million (December 31, 2018: €1,309.7 million; January 1, 2019: €1,342.1 million). Trade payables were almost unchanged from the previous year (December 31, 2019: €402.3 million; December 31, 2018: €402.7 million), but contract liabilities decreased by €69.7 million to €337.1 million (December 31, 2018: €406.8 million). On the other hand, as already mentioned above, current financial and lease liabilities showed an increase. Income tax liabilities (December 31, 2019: €46.1 million; December 31, 2018: €40.5 million) and other provisions (December 31, 2019: €187.2 million; December 31, 2018: €166.7 million) were also up. By contrast, a decrease to €229.9 million (December 31, 2018: €287.7 million) was recorded in the area of other liabilities and deferred income. In addition to personnel-related liabilities totaling €125.4 million (2018: €145.2 million), these also include conditional purchase price adjustments that mainly concern acquisitions from previous fiscal years, but have declined significantly compared with the previous year (December 31, 2019: €3.4 million; December 31, 2018: €28.1 million) due to the payments made (see also page 40 “Company acquisitions”).

Group assets and financial structure

in € millions	2018	2019
Current assets	2,028.1	2,042.2
Non-current assets	1,190.4	1,384.4
Assets	**3,218.5**	**3,426.6**
Current liabilities	1,309.7	1,387.8
Non-current liabilities	569.2	690.2
Equity	1,339.6	1,348.6
Liabilities	**3,218.5**	**3,426.6**

Reduction in working capital and increase in capital employed

Working capital decreased from €293.2 million in 2018 to €177.3 million in 2019. Here, the monitoring of the items included in trade working capital and working capital is showing success. All divisions except the Swisslog segment are showing a year-on-year improvement in working capital (Systems: 2019: €12.6 million; 2018: €34.7 million; Robotics: 2019: €173.4 million; 2018: €185.5 million; Swisslog: 2019: −€92.6 million; 2018: €2.0 million; Swisslog Healthcare: 2019: €41.2 million; 2018: €49.9 million; China: 2019: €37.1 million; 2018: €67.0 million).

Return on capital employed (ROCE)

ROCE (return on capital employed) is a key performance indicator for KUKA Group, as it illustrates the effectiveness and profitability of the capital employed.

The capital employed is calculated as the average of capital employed at the beginning and end of a given fiscal year. KUKA Group's average capital employed in 2019 was €1,374.3 million – an increase of €189.3 million on the previous year (2018: €1,185.0 million). The EBIT of €47.8 million (2018: €34.4 million) divided by average capital employed results in a ROCE of 3.5% after 2.9% in fiscal 2018.

Return on capital employed (ROCE)

in % of capital employed	2015	2016	2017	2018	2019
Group[1]	20.0%	16.2%	10.9%	2.9%	3.5%

[1] incl. consolidations

Compared with the previous year, all business segments recorded an increase in average capital employed in the year under review. In the Systems business segment, ROCE of 8.9% (2018: 11.3%) was achieved with an average capital employed of €301.1 million (2018: €260.7 million). In the Robotics segment, capital employed increased from €369.7 million in 2018 to €430.7 million in 2019, while ROCE dropped to 8.8% from 21.9% in the previous year. Here, provisions for restructuring impacted on earnings and hence ROCE. With a capital employed of €122.7 million (2018: €100.5 million), Swisslog achieved a ROCE of 8.6% and thus a significant increase on the previous year's figure of −0.2%. The Swisslog Healthcare division reported capital employed of €152.5 million in fiscal 2019 (2018: €112.3 million), but ROCE deteriorated to −6.6% from −4.2% in the previous year. The China segment was able to increase ROCE from −6.0% in 2018 to 2.3% in 2019. The average capital employed amounted to €155.6 million (2018: €90.2 million).

Return on capital employed (ROCE)

in % of capital employed	2018	2019
of which Systems	11.3%	8.9%
of which Robotics	21.9%	8.7%
of which Swisslog	−0.2%	8.6%
of which Swisslog Healthcare	−4.2%	−6.6%
of which China	−6.0%	2.3%

Events after the balance sheet date

Mr. Helmut Zodl was appointed by court order to the Supervisory Board with effect from January 24, 2020 (by order of the Augsburg Local Court dated January 23, 2020). The Supervisory Board elected Mr. Zodl as a member of the Audit Committee with its resolution of January 29, 2020. Said committee elected Mr. Zodl as Chairman of the Audit Committee on the same day.

On February 20, 2020, KUKA's Supervisory Board and Prof. Dr. Peter Hofmann, Chief Technology Officer, decided by mutual agreement to terminate their working relationship for personal reasons. Prof. Dr. Peter Hofmann had been Chief Technology Officer on the Executive Board since November 2019 and was also responsible for research and development in the Robotics business segment.

The particular risks and effects of the coronavirus crisis for KUKA cannot be assessed at this time.

Notes to the annual financial statements of KUKA Aktiengesellschaft

KUKA Aktiengesellschaft acts as the management holding company within the Group with central management responsibilities such as accounting and controlling, finance, human resources, legal, IT and financial communications. The financial position is determined primarily by the activities of its subsidiaries. This is reflected in the direct allocation of the main companies of the Robotics, Systems, Swisslog, Swisslog Healthcare and China divisions.

The annual financial statements of KUKA Aktiengesellschaft are prepared in accordance with the provisions of the German Commercial Code (HGB) and the German Stock Corporation Act (AktG).

The financial statements of KUKA Aktiengesellschaft are published in the electronic Federal Gazette (Bundesanzeiger) and on the KUKA Group website (www.kuka.com).

Income statement of KUKA Aktiengesellschaft (HGB)

in € millions	2018	2019
Sales revenues	128.6	142.3
Other company-produced and capitalized assets	1.4	1.3
Other operating income	52.4	18.3
Cost of materials	−69.5	−72.5
Personnel expense	−61.5	−61.2
Depreciation and amortization of tangible and intangible assets	−14.8	−15.9
Other operating expenses	−59.2	−31.6
Income from equity investments	86.7	37.2
Other interest and similar income	13.0	12.5
Interest and similar expenses	−10.4	−8.3
Taxes on income	−0.3	0.3
Net profit for the year	**66.4**	**22.4**
Profit carryforward from the previous year	9.1	30.4
Transfer to retained earnings	−33.2	−11.2
Balance sheet profit	**42.3**	**41.6**

Balance sheet of KUKA Aktiengesellschaft (HGB)

Assets in € millions	2018	2019
Fixed assets		
Intangible assets	34.9	28.9
Tangible assets	109.4	147.3
Financial assets	484.8	484.8
	629.1	**661.0**
Current assets		
Receivables from affiliated companies	557.6	716.3
Other receivables and assets	4.3	1.5
Securities	–	41.0
	561.9	**758.8**
Cash and cash equivalents	**5.6**	**67.5**
	567.5	**826.3**
Prepaid expenses	**2.6**	**2.6**
	1,199.2	**1,489.9**

Liabilities in € millions	2018	2019
Equity		
Subscribed capital	103.4	103.4
Capital reserve	305.8	305.8
Other retained earnings	287.4	298.6
Balance sheet profit	42.3	41.6
	738.9	**749.4**
Provisions		
Pension provisions	11.6	11.6
Provisions for taxes	7.6	7.7
Other provisions	34.8	29.8
	54.0	**49.1**
Liabilities		
Liabilities due to banks	255.1	250.8
Trade payables	6.5	7.3
Accounts payable to affiliated companies	128.4	419.9
Liabilities to provident funds	2.4	2.4
Other liabilities	13.9	11.0
	406.3	**691.4**
	1,199.2	**1,489.9**

Results of operations of KUKA Aktiengesellschaft

The income situation of KUKA Aktiengesellschaft significantly depends on the results of the (direct) subsidiaries, the financing activities and the expenditure and income relating to the holding function.

Sales revenues increased from €128.6 million in 2018 to €142.3 million in 2019. KUKA Aktiengesellschaft mainly generates its sales revenues from cost allocations and cost transfers to subsidiaries. These rose by 12.0% to €128.0 million in the past fiscal year (2018: €114.3 million). KUKA Aktiengesellschaft generated €14.2 million (2018: €14.2 million) by renting buildings to companies which belong to the Group. The expenses associated with sales revenues are reported as cost of materials and services purchased. These amounted to €72.5 million during the financial year (2018: €69.5 million).

The other operating income in the amount of €18.3 million (2018: €52.4 million) consisted mainly of currency translation gains, primarily from the US dollar, Swiss franc and Swedish krona. The previous year's figure also included income from the disposal of financial assets. Other operating expenses fell from €59.2 million to €31.6 million. In addition to a decline in currency translation losses, lower external service costs for the global IT projects had a particularly positive effect on earnings. In the previous year, this item also included expenses from the change to the Executive Board which took place in December 2018.

Compared with the previous year, personnel expenditure fell slightly by 0.5% to €61.2 million (2018: €61.5 million). The average number of employees decreased from 624 in the previous year to 617 in fiscal 2019.

Income from investments totaled €37.2 million (2018: €86.7 million) and was thus down on the figure for the previous year. The decrease is due to the lower earnings contribution of the German companies that have a profit transfer agreement with KUKA Aktiengesellschaft. This is offset by increased other income from investments in related companies totaling €71.3 million (2018: €56.0 million).

Net interest increased by €1.6 million to €4.2 million (2018: €2.6 million). Both interest income and interest expenditure fell in fiscal 2019. Compared with 2018, there were lower expenses for bank loans and interest expenses to banks in particular. The interest result with affiliated companies fell by €0.4 million from the previous year to €10.9 million.

The reported taxes on income and earnings amounting to €0.3 million include tax refunds for past assessment periods as well as capital gains taxes and foreign withholding taxes.

The net income of KUKA Aktiengesellschaft amounted to €22.4 million in fiscal 2019 (2018: €66.4 million). Taking into account the profit carried forward from the previous year of €30.4 million and the transfer to revenue reserves of €11.2 million, this results in a balance sheet profit of €41.6 million.

Financial position of KUKA Aktiengesellschaft

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

KUKA Aktiengesellschaft's financing role is reflected in its receivables from and liabilities to affiliated companies, which are predominantly the result of cash pooling accounts with subsidiaries and loans provided. Since 2019, they also include a new loan from Midea International Corporation Company Limited, Hong Kong, in the amount of €150.0 million to KUKA Aktiengesellschaft. The balance of these receivables and liabilities was a net receivables figure of €296.4 million (2018: €429.2 million). Both receivables from and liabilities to affiliated companies are higher than in the previous year, with the change in liabilities being primarily attributable to the new loan mentioned above.

The liquid assets of KUKA Aktiengesellschaft rose significantly from €5.6 million to €67.5 million. Financial liabilities fell by €4.3 million on the previous year to €250.8 million (2018: €255.1 million) and relate to the promissory note loan.

Net assets of KUKA Aktiengesellschaft

The net assets of KUKA Aktiengesellschaft are impacted by the management of its equity investments as well as the way in which it executes its management function for the companies in KUKA Group. The receivables from affiliated companies rose from €557.6 million in the previous year to €716.3 million. The increase is related to the aforementioned dividend distribution by a Swiss subsidiary, among other factors. For further details of the receivables from and liabilities to affiliated companies and financial items, please refer to the information on KUKA Aktiengesellschaft's financial position.

Depreciation and amortization of intangible and tangible fixed assets increased from €14.8 million in 2018 to €15.9 million in 2019. This is due to the increased investment volume in both intangible and tangible assets. Investments totaling €48.5 million (2018: €38.0 million) were made in fiscal 2019. The investments relate mainly to construction work at the Augsburg site. The construction of a new production building was completed at the end of 2019. Other construction measures, such as the building of a new education center, are currently still ongoing.

KUKA Aktiengesellschaft's direct equity investments in its subsidiaries are reported under financial assets. The disposals in fiscal 2019 relate to Freadix FryTec GmbH, Augsburg and Metaalwarenfabriek's-Hertogenbosch B.V., s-Hertogenbosch, Netherlands. Since the aforementioned companies had already been fully written down in previous years, the balance sheet value of other financial assets remains unchanged at €484.8 million (2018: €484.8 million).

Other assets decreased to €1.5 million in 2019 (2018: €4.3 million); this is attributable to lower income tax receivables.

The short-term securities totaling €41.0 million (2018: €0.0 million) have a term of four months and relate to long-term freely available financial resources invested in conjunction with liquidity management.

Equity was up €10.5 million on the previous year and thus reflects the positive result for the fiscal year. Additionally, the dividend of €11.9 million for fiscal 2018 was paid out in the 2019 fiscal year. The equity ratio of KUKA Aktiengesellschaft amounted to 50.3% as at the balance sheet date December 31, 2019 (2018: 61.6%).

As at December 31, 2019, other provisions totaled €29.8 million (2018: €34.8 million) and were thus down on the corresponding figure for the previous year. One factor for this decline is lower provisions relating to personnel. Other liabilities also decreased from €13.9 million to €11.0 million due to lower tax liabilities.

The net impact on the balance sheet total of KUKA Aktiengesellschaft resulting from the effects described was an increase of €290.7 million to €1,489.9 million (December 31, 2018: €1,199.2 million).

Dependency report

Since there is no control agreement between KUKA Aktiengesellschaft and the majority shareholders, the Executive Board is obliged to prepare a report on the company's relationships with affiliated companies during the reporting period pursuant to section 312 of the German Stock Corporation Act (AktG). The report was concluded with the following declaration:

"We declare that for each legal transaction in relation to the legal transactions and measures listed in the report on relationships with affiliated companies, the company received appropriate compensation according to the circumstances known to us at the time the legal transaction was performed or the measure was taken and was not put at a disadvantage as a result of the measure being taken. There were no omitted measures."

Non-financial key performance indicators [1]

Sustainability at KUKA

Ecological responsibility

At KUKA, sustainability is embedded in the corporate culture and stands for responsible business practices aimed at protecting the environment, our employees, customers, investors and our social environment. To ensure long-term success, KUKA sets high standards for its products, systems and solutions and is committed to responsible and transparent corporate governance.

Resource-saving production and environmental protection

KUKA products and systems stand for innovation and quality. We therefore set the bar very high when it comes to our own production processes. KUKA also contributes to environmental protection by minimizing the use of raw materials and the level of pollution generated. KUKA has taken extensive measures to minimize its environmental impact. Most of our production locations work according to internationally recognized management 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.

Focus on emissions and water consumption

By using certified environmental management systems, KUKA can ensure that the impact of energy consumption and production processes on the environment is as low as possible. KUKA also considers the development of emissions and the volume of waste and effluents to be components of the environmental management system, even if they are less significant than energy consumption. Production waste is separated and disposed of or recycled expertly by trained personnel.

At KUKA, water is only used to a limited extent in the paint shop and in cooling processes. At our largest production locations, the total water consumption in 2019 amounted to 104,217 m³ (2018: 112,872 m³).

CO_2 emissions at our largest production locations totaled 31,923 tonnes in 2019 (2018: 35,353 tonnes).

KUKA is investing in an environmentally-friendly and future-proof energy supply. A new, almost CO_2-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. The new district heating pipeline was put into service by the Augsburg public utility company in 2019 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. The new district heating pipeline also supplies the surrounding industrial estates. Around 44,000 kWh 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 CO_2 emissions significantly. KUKA also meets 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.

Reducing energy consumption

Energy savings can be achieved first and foremost in the production of robots. KUKA has production locations in Germany, Hungary and China. At the production sites in Germany, KUKA analyzes the consumption of electric power 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. In Augsburg, for example, data are collected using meter installations with more than 550 measurement points, the number of which is continuously being increased. Other environmentally friendly and energy-saving influences that have an impact on the purchase of new components are also evaluated at all sites.

The global strategic energy and environmental goals are:

- Lowering of energy consumption
- Lowering of CO_2 emissions
- Reduction of waste
- Research and development of sustainable products and technologies

Energy-efficient solutions in systems engineering

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

Swisslog has created its own energy efficiency label called GreenLog, which provides information on potential savings. In the course of the ongoing development of products from the 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.

Contribution to the circular economy – recycling and retooling

We offer our customers a retooling service for older robots. Robots that are no longer in use are taken back by KUKA and refurbished. These are sold again as used machinery in many cases. Where this is not possible, KUKA offers disposal services or recycling for used robots. Together with its customers, KUKA thus strives to achieve a closed-loop materials cycle.

[1] Information not included in the management report: no verification by auditors

Employees

Employees in KUKA Group

KUKA shapes many different sectors with its technologies. The employees are the pillars of KUKA's success in doing so. In order to further improve its attractiveness as an employer, KUKA offers, for example, an ambitious training and further education program, measures to help employees reconcile work and family life, health and sports offerings and promotes diversity and equal opportunities.

Slight decline in the number of employees

As at December 31, 2019 KUKA Group employed 14,014 people. The headcount thus showed a slight decline of 1.6% on the previous year (2018: 14,235). The Systems division employed 3,208 staff as at December 31, 2019. This was a slight increase of 3.1% on the previous year (2018: 3,112). In the Robotics division, the workforce declined by 7.6% to 5,502 employees (2018: 5,957). The headcount at Swisslog rose by 9.8% to 2,168 (2018: 1,975). At Swisslog Healthcare, the number of employees increased by 24.4% from 1,159 after 931 in the previous year. Under the new organizational structure, the Swisslog and Swisslog Healthcare segments, previously consolidated under Swisslog, were separated. Employees in central functions previously responsible for both companies were allocated to the new segments, resulting in the difference compared to the previous year. The workforce in China comprised 1,382 employees at the end of the financial year, 8.7% below the headcount of 1,514 in the previous year. There were 3,505 employees at the Augsburg site as at December 31, 2019.

The currently difficult market environment presents KUKA with many challenges. KUKA reacted to this at an early stage and initiated an immediate action plan in January 2019 to achieve sustainable and profitable growth once again. The efficiency program developed for this purpose also included personnel measures. Around 350 full-time jobs had to be cut at the Augsburg location, mainly in the so-called indirect departments such as Administration, Purchasing, Sales and Project Management. Management worked closely with the employee representatives to develop a socially acceptable concept.

A sustainable business model is being implemented in the new fiscal year for a unit in the Robotics segment that is responsible for project business and based in both Augsburg and Obernburg. The goal is that the restructuring will enable the division to return to profitability in the future and make a sustainable contribution to KUKA's success. The need for reorientation is due to the economic development in this subdivision, which has already been tense for some years. This was compounded by the currently difficult market environment. The reorientation will also affect part of the workforce at both locations and entail the loss of up to 255 jobs. 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.

High standard of training and further education

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. KUKA maintains a high standard in the quality of training and the level of performance. This is why KUKA apprentice graduates finish best in class in their respective training occupation time and again. 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.

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

As part of our continuing education programs at the KUKA Academy, we accompany and support our employees in their personal and professional development. At the KUKA Academy, we offer all our employees an extensive and varied range of technical/methodical and personal further education courses. These include standard courses, such as computer and language courses, specific professional courses from the fields of sales, purchasing, business administration, strategic implementation and project management, along with seminars for leadership, communication and change management.

Diversity and tolerance are the order of the day

At KUKA, diversity involves promoting and benefiting from the diversity of our employees as a source of creativity, innovation and business success. KUKA benefits from various experiences and talents, because living and promoting diversity is part of the corporate culture. At many locations, KUKA offers employees flexible working times in order to better combine work and private life. Accepting and promoting diversity to benefit from different experiences and talents is part of the corporate culture at KUKA. As a signatory to the Diversity Charter, KUKA has also anchored the topic within the structure of the company.

Promoting networks

KUKA supports the internal women's network orangeWIN, which helps to identify and promote female talent. In 2019 the network was further expanded and orangeWIN was founded in the USA.

KUKA has also been involved in the Augsburg cross-mentoring program since 2011, which is committed to gender equality at work, and is engaged in MigraNet, which aims to achieve the professional integration of people with a migrant background.

Fostering talent and facilitating intercultural exchange

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 intended to contribute to the corporate strategy and are examined by a commission consisting of representatives from the home country and the host country.

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.

Focus on occupational health and safety

Occupational health and safety are an essential requirement for ensuring that business operations run smoothly in manufacturing companies like KUKA. Appropriate management systems and general awareness of occupational safety protect the health of employees. Occupational health and safety is therefore firmly embedded in management systems and supported in some cases by external certifications at the major locations of KUKA Group.

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 health hazards. An important element of “Vision Zero” is behavioral measures aimed at ensuring that employees consistently act in a safety-conscious manner.

Social engagement

KUKA employees in Augsburg founded Orange Care e. V., a non-profit association which supports people in need, especially in terms of helping young people and families. Orange Care has also sponsored a children’s daycare center since 2014 with the goal of improving the work-life balance for our employees. In 2019, for example, Orange Care supported the KlinikClowns e. V. of the pediatric ward in the Josefinum specialist clinic in Augsburg. The two clowns visit the children’s ward once a week and make everyday life in the hospital easier for the children through play and fun. Orange Care also donated to the Regens Wagner Foundation in Holzhausen. The foundation offers people with disabilities broad support for school, training, employment and daycare. Through its donation, Orange Care supported severely disabled people with musical encouragement. Orange Care also provided financial support to “Verein Kinderweihnachtswunsch” (Christmas wish association for children), through which it was able to fulfill several Christmas group wishes for children and young people in social institutions. Donations included entrance tickets to the televised singing competition “The Voice of Germany” in December, and a bicycle.

In Augsburg, KUKA works with the Ulrich Workshops of the social enterprise CAB Caritas Augsburger Betriebsträger GmbH. The Ulrich Workshops find jobs for people who are unable to find employment in the general labor market due to the nature or severity of their disability.

KUKA also supports the youth research center “Herrenberg-Gäu Aerospace Lab e. V.” as a premium sponsor. The aim is to encourage young people, especially girls, to study 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.

KUKA employees worldwide take on responsibility in the community and support social causes. Employees in the USA, for example, are involved in the KUKA Cares Foundation, which was established by KUKA Systems and partner companies. One of the core missions of the foundation is to support people in distress and families in need, for example in terms of health, their financial situation or educational projects.

Bringing robotics and automation closer to the public

European Robotics Week (ERW) was initiated by the European robotics association euRobotics and takes place every year in November. In November 2019, KUKA took part in ERW 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. Another aim is to arouse the interest of young people in technology and scientific subjects. Children’s lectures on robotics were offered in schools and kindergartens in the year under review along with talks on the topic of “Humans and Robots” held in Augsburg Planetarium and the Development and Technology Center.

In addition, the draft of an innovative concept with the KUKA LBR Med for use in hospitals and rehabilitation centers, developed by a research team from the universities of Leeds, Vanderbilts and Turin, won the KUKA Innovation Award in the year under review.

Forecast, opportunity and risk report

Opportunity and risk report

Basic principles

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

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

Group management regularly assesses the likelihood that identified risks will occur and their potential impact on expected earnings (EBIT). Worst, medium and best case scenarios are considered and serve as the basis for determining a weighted expected risk value. Accruals and write-downs associated with these risks are recognized in the annual financial statements in accordance with applicable accounting principles. The unsecured residual risks, i. e. risks according to risk mitigation measures (net assessment), are therefore depicted as risks.

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

The management of the business segments and the individual subsidiaries is directly responsible for the early identification, control and communication of the respective risks. Risk managers in the central and decentralized business units ensure that the reporting process is uniform with clearly defined reporting channels and reporting thresholds that are adapted to the business segments and KUKA AG. Internal ad hoc announcements are mandatory whenever risks exceed the Group's defined reporting thresholds. Standard procedures applied throughout the Group ensure that risk management is efficient and effective. Corporate Risk Management coordinates the risk management system. Here, the individual risks identified are compiled into the aforementioned top 10 risk overviews or risk exposure overviews, communicated and monitored. This role is based within KUKA Aktiengesellschaft's Corporate Controlling department, which reports directly to the CFO of KUKA Aktiengesellschaft. This ensures that risk management is an integral component of KUKA Group's overall planning, control and reporting process.

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

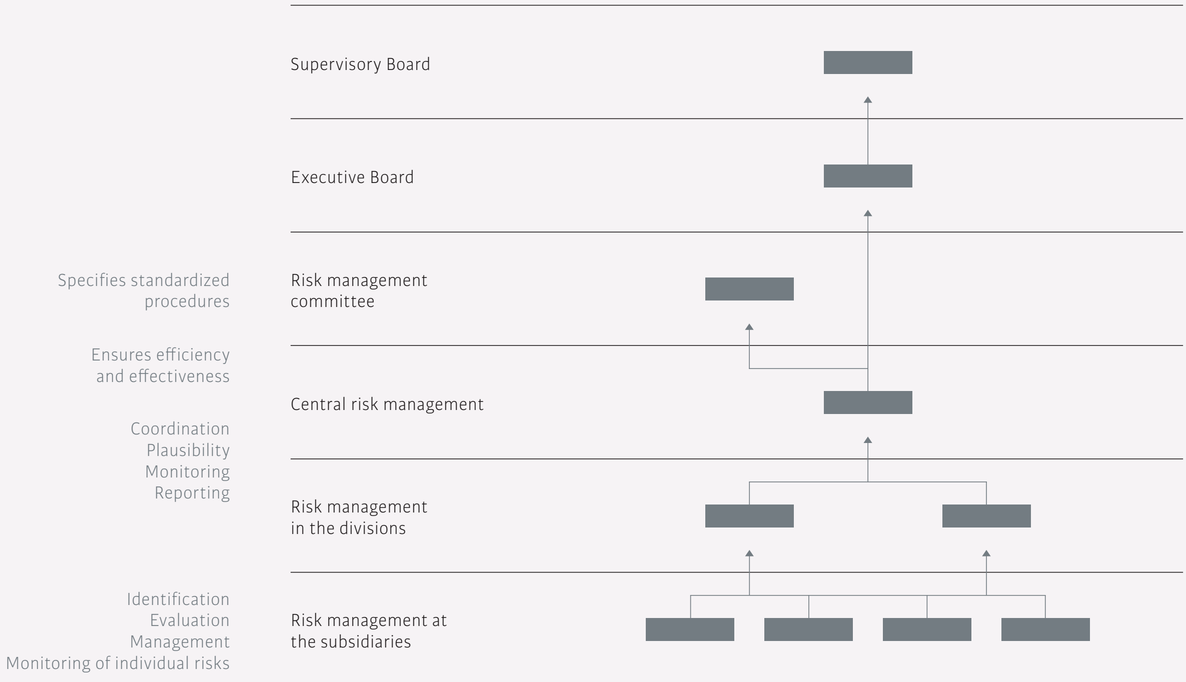
In addition to the risk management system, KUKA Group has an internal control system (see management report, "Internal control and risk management system" section, page 57) above and beyond the risk management system, which it uses to continuously monitor the appropriateness of the corporation's business and accounting processes and identify potential improvements.

Risks and opportunities in KUKA Group

KUKA Group's opportunity and risk-related controlling process ensures that the company's managers take both opportunities and risks into consideration. The Group's risk exposure, based upon evaluating operating risks according to the procedure outlined in the "Basic principles" section, is described below. The report includes the aggregated expected risk value, which is calculated on the basis of the various weighted scenarios and their respective likelihood of occurrence. The aggregated expected risk values of all risks managed and quantified in the Group are reported. The following section quantifies the risks managed at Group level as well as the operating risks of the divisions.

No aggregation is carried out for the opportunities at Group level. For this reason, the opportunities are dealt with in greater detail in the following sections on the divisions.

Risk management organization



Internal and external auditors check the risk management system and the risk early detection system (RFS)

Group risk exposure

in € millions	2018	2019
Legal risks	10.7	7.7
Economic risks	–0.7	2.7
Financial risks	13.0	21.8
Total for the Group	**23.0**	**32.2**

In the previous year, intensified risk mitigation measures resulted in a theoretically negative expected risk value in individual cases.

Detailed explanations of the risk categories listed can be found in the following sections.

Operating risks and opportunities of the business segments and KUKA AG

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

During the course of 2019, KUKA felt the effects of further weakened investment activities in both the automotive industry and the general machinery and systems engineering sector. The cooling of the global economy had a negative impact on the company's business development, particularly in its focus markets of automotive and electronics. The Europe and China regions have been hit particularly hard. In addition, there are further costs resulting from existing orders and the need for restructuring in the Robotics business segment. The ongoing trend towards automation invariably also offers opportunities in non-industrial sectors, such as the long-term prospects associated with assisting an aging society. The digitalization strategy has been implemented continuously through various projects.

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

KUKA Group introduced the KBO structure at the beginning of 2019. From now on, Group reporting will be based on five business segments – Systems, Robotics, Swisslog, Swisslog Healthcare and China.

The Swisslog segment was restructured in this context. The Swisslog and Swisslog Healthcare divisions are now shown separately in this report. The figures reported for the previous year were reconciled from the existing data.

The new China segment contains risks previously reported in the Systems, Robotics and Swisslog divisions.

KUKA Systems

This division's revenues and profits are subject to general business risks due to the length in time it takes to process project orders, the revisions to the specifications that are often necessary while already processing the orders, the infrequency of the orders received, and the price and competitive pressures. Other risks associated with these projects include inaccurate prediction of the actual costs as well as penalties for late deliveries. The division therefore uses appropriate risk checklists for individual orders in order to assess the associated legal, economic and technological risks prior to preparing a quotation or accepting a contract. One of the components of project execution, for example, is to monitor and track solvency risks and mitigate them using a strict project and receivables management process. Other risks are continuously monitored and if necessary accounted for by way of accruals or write-downs. Opportunities associated with the project business arise mainly when parts can be purchased at a lower cost than originally estimated and by invoicing the customer for any change orders received over the course of the project. In 2019, several projects in Europe were subject to significant additional costs due to the high complexity of these projects and the associated delays. These effects have been taken into account in the amended project calculation and are already included in earnings for 2019 through provisions for impending losses.

Automation requirements in the expansion of global production capacities of the major automobile manufacturers, particularly in the field of electromobility, are currently highly dynamic. KUKA is increasingly working together with internal partners, with several of the division's regional subsidiaries collaborating on a customer project. In these situations, there are risks involved in information exchange, the value-added process and project management across various IT systems. There are also organizational risks associated with extraordinarily rapid and strong growth in business volume, particularly in emerging markets. KUKA mitigates these risks by deploying experienced internal and contract employees when establishing and expanding the local organizations.

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

Pay-on-production contracts such as KTPO's (KUKA Toledo Production Operations) offer additional opportunities, but also risks. The Jeep brand continues to promise above-average growth prospects compared to other American car models. KUKA will continue to participate in this growth.

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

Systems risk exposure

in € millions	2018	2019
Legal risks	0.3	0.0
Economic risks	–0.2	0.4
Financial risks	0.0	0.0
Total for Systems	**–0.1**	**0.4**

In the previous year, intensified risk mitigation measures resulted in a theoretically negative expected risk value in individual cases.

KUKA Robotics

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

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

KUKA sees an opportunity to continuously expand its customer base in general industry with a focus on Handling, Machining & Processing (HMP). One of the company's key strategic thrusts is to penetrate new, non-automotive markets. The company's profitability will become less and less dependent on exchange-rate fluctuations as it increasingly spreads its value added across different local currencies.

The cell business has come under pressure in recent years due to high project risks and falling market prices. It is necessary to adapt the structure to the changed conditions. The business model has been restructured to focus on standardized cells. A provision was set up in fiscal 2019 for the resulting one-off costs. In addition to projects based on customer-specific solution requests, this includes the expansion of project business towards modules and standardized cells.

Robotics risk exposure

in € millions	2018	2019
Legal risks	0.3	0.0
Economic risks	0.0	0.5
Financial risks	0.0	0.1
Total for Robotics	**0.3**	**0.6**

Swisslog

The Swisslog segment broadens KUKA's range of products and services and makes a decisive contribution to independence from the automotive industry.

In some cases, projects for the automation of warehouse and distribution centers are subject to long lead times which can give rise to financial risks resulting from miscalculations, failure to meet acceptance specifications or late deliveries. To counter this, regular project risk assessments are carried out at different stages of the projects by those responsible for project implementation in the relevant countries. Potential risks are regularly reviewed, new ones are added or existing ones eliminated, and measures for risk reduction are introduced and their progress documented. Projects requiring particular management attention are classified as "top attention projects" and their status is communicated monthly to the higher management levels. In 2019, the increase in the order book has also created a considerably higher risk position for possible project delays and potential financial risks.

The segment has been reported separately for the first time in this annual report.

Swisslog risk exposure

in € millions	2018	2019
Legal risks	0.0.	0.0
Economic risks	–0.5.	1.8
Financial risks	1.0	13.6
Total for Swisslog	**0.5**	**15.3**

Intensified risk mitigation measures result in a theoretically negative expected risk value in individual cases.

Swisslog Healthcare

The Swisslog Healthcare segment likewise broadens KUKA's range of products and services and contributes to independence from the automotive industry. Market data indicate that the increasing pressure on costs and the strict safety requirements for hospital logistics offer high growth potential for automation. Furthermore, consolidated service centers, in which hospitals standardize their logistics processes and achieve cost advantages, generate greater demand for automation solutions. Risks arise from complex technical and regulatory requirements.

The segment has been reported separately for the first time in this annual report.

Swisslog Healthcare risk exposure

in € millions	2018	2019
Legal risks	0.0	0.2
Economic risks	0.0	0.1
Financial risks	2.4	3.0
Total for Swisslog Healthcare	**2.4**	**3.3**

China

The China segment comprises all business activities of the Chinese companies in the Systems, Robotics, Swisslog and Swisslog Healthcare divisions. For this reason, the risks arise from the above-mentioned segment and product-specific risks.

In general, risks and impacts are identifiable on account of the current geopolitical situation. Beyond this, there are risks attributable to the coronavirus crisis, which in many regions of China is leading to major constraints on public and business life as a result of official restrictions. Negative effects on global economic development are therefore to be expected. KUKA can only take limited risk-reducing measures to mitigate these risks of global magnitude. For this reason, KUKA is focusing on trust-based cooperation with local customers and a suitable product portfolio. The reluctance to invest is leading to increased competition, which entails the risk of significantly lower order volumes and margins. Here, also, KUKA is taking measures to improve efficiency in production and project management in order to further reduce costs.

As part of restructuring, local expertise and capacity to act have been strengthened and geared towards the requirements of the Chinese market. This makes it possible to take greater advantage of business opportunities.

The segment has been reported separately for the first time in this annual report.

China risk exposure

in € millions	2018[1]	2019
Legal risks	0.0	0.0
Economic risks	0.0	–0.2
Financial risks	0.0	0.9
Total for China	**0.0**	**0.7**

[1] 2018: Risks for China were included in the divisions.

Intensified risk mitigation measures result in a theoretically negative expected risk value in individual cases.

Risks and opportunities managed at holding level (KUKA AG)

Cross-division opportunities and risks are analyzed and managed at Group level for central functions such as legal, taxes, financing, human ressources and IT, rather than by the individual divisions, which is why said risks are only addressed from the Group perspective in the opportunity and risk report. Information about this can be found in the specified sections.

Risk exposure KUKA AG

in € millions	2018	2019
Legal risks	10.1	7.6
Economic risks	0.0	0.0
Financial risks	9.6	4.3
Total for the Group	**19.7**	**11.9**

Strategic risks and opportunities

KUKA's business segments aim to be among the technology and market leaders in their target markets. The key to achieving this is to consistently enhance their core technologies on the basis of coordinated innovation programs. One important task is to identify opportunities and risks associated with technical innovations early and to evaluate the innovations' manufacturability. The company mitigates the impact of faulty market assessments by conducting regular market and competitor analyses, some of which are decentralized. Application-related developments, system partnerships and cooperative ventures reduce the risk of development work not conforming to market requirements. Strategic risks and opportunities are not quantified.

Legal risks and insurance

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

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

In the context of insurance/risk management, sufficient property insurance, loss-of-profits insurance, public, product and environmental liability insurance, transportation insurance and cyber insurance are maintained centrally for the Group. D&O insurance (directors and officers liability insurance) is also in place. Existing insurance policies are reviewed annually in order to ensure sufficient cover and to weigh the relationship between the insurance protection and deductibles against the risk premium.

Financial risks

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

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

KUKA pursues a conservative financing policy with a balanced funding portfolio. This is essentially based on the promissory note loans issued in 2015 and 2018 with staggered maturities up to 2023, on a syndicated loan refinanced in 2018 with a term until 2025 and providing cash credit facilities and guarantee lines, and on an inter-company loan concluded with Midea in December 2019, also with a term until 2025. Two standard financial covenants (leverage and interest coverage ratio) have been agreed for the syndicated loan. KUKA monitors adherence to these covenants based both on the current figures and on planning. The covenants were complied with throughout fiscal 2019. As at December 31, 2019, both covenants were well within the contractually defined limits. Beyond these financing agreements, additional financing options are available to KUKA within the terms of factoring framework agreements. Comprehensive details of the financing instruments and the extent to which the agreed credit lines have been utilized can be found in the notes to the annual financial statements, in the section "Financial liabilities/Financing" (from page 102 onwards).

KUKA hedges the interest rate and exchange rate risks from operations and financial transactions with financial derivatives. Transactions in financial derivatives are exclusively entered into for hedging purposes, i.e. always with reference to and for hedging underlying transactions. Whenever possible, KUKA AG is the central hedging partner of the Group companies, and it in turn hedges the Group's risks by concluding appropriate hedging transactions with banks. Internal guidelines govern the use of derivatives, which are subject to continuous internal risk monitoring. For a more precise description of our risk management objectives and the methods employed please refer to the notes on financial risk management and financial derivatives, starting on page 104.

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

Personnel risks and opportunities

The success of KUKA Group, a high-tech enterprise, depends to a great degree on having qualified technical and management staff. Personnel risks arise mainly from employee turnover in key positions within the Group. Due to the current general conditions, there is a risk of higher fluctuation, which could lead to shifts in competencies. KUKA is countering this risk, not least by means of in-house continuing education programs such as those offered by KUKA Academy or employee suggestion programs in order to boost the satisfaction, motivation and qualification of the workforce. This also opens up opportunities for the recruiting of new employees.

IT risks and opportunities

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

Risks in the area of information security and data protection are continuously monitored and analyzed, as they can result in considerable risks for the Group due to changes in the legal framework.

Compliance risks

Compliance violations can have far-reaching consequences, resulting in long-term damage to the company and restricting its economic success. In addition to high fines and compensation payments, exclusion from tenders, disgorgement of profits and criminal law repercussions are possible. KUKA's image as a business partner of integrity could also be tarnished. This can have a negative effect not only on customer relationships, but also on business relationships of all kinds. Consequently, strategic projects, transactions and capital market measures could suffer as a result.

In order to counter these risks in a transparent and appropriate manner, the Group-wide Corporate Compliance Program was set up in 2008. Details can be found in the Corporate Compliance Report.

The Compliance Committee established through this program holds regular ordinary meetings as well as extraordinary meetings as required. The members have a wide-ranging and in-depth wealth of experience in both the company and the industry. This enables them to assess risks carefully and adequately.

The committee is chaired by the Chief Compliance Officer, who reports to KUKA Aktiengesellschaft's CEO, who in turn reports to the Supervisory Board's Audit Committee.

The CEO is ultimately responsible for the Corporate Compliance Program, which is updated as required and subject to strict internal controls. The Corporate Compliance Program is integrated into daily work by means of the comprehensive processes and measures of the Compliance Management System.

No substantial compliance risks were identified in 2019 due to the active countermeasures taken by KUKA to mitigate risk at an early stage and to eliminate risk sources, e.g. by realigning processes and adapting training to specific target groups.

Other risks

KUKA Group continuously monitors other risks and mitigates these to the greatest extent possible. There is no evidence of environmental risks from operational activities, since the company largely abstains from the use of hazardous materials and the locations are regularly certified to ISO 14001. The Group owns some of the buildings and properties that it uses for its business operations. As a result, the company is exposed to risks associated with any residual pollution, soil contamination or other damaging substances that may be discovered on its properties. There is currently no evidence of any situations that would have a negative impact on the measurement of balance sheet items. However, it cannot be ruled out that any such situations, which could, for example, require costly clean-up operations to be undertaken, will occur in the future. At the locations, risks relating to fire protection, water and media supply, static and construction defects are regularly investigated. These are assessed by experts and measures are taken to improve the risk.

Summary

In the overall assessment of risks, KUKA Group is primarily exposed to performance-related risks from the divisions and to legal and financial risks controlled at Group level. Despite increasing risk potential that has been identified and evaluated in the risk management system, the Executive Board is not aware of any individual or aggregated risks that could threaten the company's existence. Strategically and financially, the company is positioned to be able to take advantage of business opportunities.

Forecast

General economic environment

The International Monetary Fund (IMF) expects the global economy to achieve stronger growth in 2020 than in the previous year (3.3% in 2020 after 2.9% in 2019). For 2021, the IMF predicts growth of 3.4%. In particular, the continuing expansionary monetary policy of the central banks is seen as a supportive factor, underpinning consumption and ensuring that many companies continue to have access to financing on favorable terms. In addition, concerns about an unregulated Brexit are diminishing and initial positive signals in the trade dispute between the USA and China are regarded as signs of stabilization. But despite the partial agreement, the trade dispute is not off the table and many tariffs are still being maintained. According to the IMF, the turning point has not yet been reached and numerous risks still exist. A renewed escalation in the trade dispute or geopolitical tensions, such as between the USA and Iran, as well as anti-government protests in many countries could become renewed burdens on economic development. The IMF sees the effects of weather-related and other natural disasters as a further economic risk.

For the eurozone, the IMF anticipates economic growth of 1.3% for 2020. Growth will thus be slightly above the 1.2% of the previous year. According to IMF expectations, European economic growth should increase by a further tenth of a percentage point in 2021; the growth rate is forecast to reach 1.4%.

The German economy should be able to pick up some momentum again in 2020. The IMF is predicting a growth rate of 1.1%; in 2019 growth was just 0.5%. For 2021, the IMF expects a 1.4% increase in Germany's economic output. The export-oriented German industries in particular should benefit from stabilization of the global economy.

The US economy grew by 2.3% in 2019. The IMF forecasts growth of only 2.0% for 2020 and of just 1.7% for 2021.

In China, the sentiment among companies had deteriorated significantly due to the ongoing trade war. At the end of the year, however, hopes of an agreement served to brighten the mood. The IMF expects China to grow by 6.0% in 2020 and by 5.8% in 2021.

The current market environment remains difficult, however. In particular, the dispute over import tariffs and discussions about free trade are influencing companies' investment decisions and putting pressure on the global economy.

Robotics and automation

Global uncertainties, mainly caused by the trade dispute and the unresolved Brexit, had a major impact on investment decisions worldwide; growth in the global economy as a whole slowed down. In its latest report, the International Federation of Robotics (IFR) therefore anticipates only a stable development of the worldwide demand for robots in 2019 (0%). Robot sales in Europe and in North and South America are expected to decrease by –1% on the previous year, and those in Asia to increase slightly by +1%. For 2020, the IFR then predicts renewed growth of 10% in global demand for robots. An increase of 5% is expected for Europe, 8% for North and South America, and 12% for Asia. The forecast for China is a year-on-year increase in demand of 19%. These forecasts refer to the entire robot market and all robot types. The strongest growth is expected in the SCARA robot segment.

Technological advances in robot-based automation also offer high additional growth opportunities. Examples include human-machine collaboration, intelligent IIoT solutions (IIoT = Industrial Internet of Things) with cloud-based systems, and easy-to-use applications. The achievement of climate protection targets poses additional challenges for many companies. Customers expect sustainable and energy-efficient products and solutions from manufacturers.

Growth opportunities for KUKA

Automotive

The automotive industry is one of the largest customers for industrial robots worldwide. In recent years, manufacturers have invested in the modernization of existing plants and also expanded their production capacities in emerging markets. Between 2013 and 2018, average annual robot sales (CAGR) in the automotive industry were 13%. However, the automotive industry is facing great challenges. In the USA alone, the number of different models and the diversity of model variants have almost doubled over the last 20 years. At the same time, the complexity of the vehicles and thus the number of parts has increased enormously. In particular, the new drive technologies with hybrid and electric vehicles required to achieve the climate targets for 2030 will further strengthen this trend.

These changing market conditions necessitate suitable and competitive production solutions. Digitalization and automation play a key role here. As an automation specialist, KUKA has developed matrix production, a versatile and flexible production solution, in order to meet these requirements. This enables various individualized products to be manufactured on a single system. Faced with increasing type variety, frequent changes of model and quantity fluctuations, the production system can be converted extremely quickly as required. The system is equipped with software based on artificial intelligence. Quickly adaptable production cells thus replace rigid systems that can typically take many weeks or even months to convert. In highly competitive markets, flexible systems increase the competitiveness of our customers.

Growth potential also lies in the digitalization of factories, which is creating new business models. In the so-called Smart Factory, for example, communication technologies are used that make predictive maintenance possible. The practical advantages of predictive maintenance include reliable production planning and maximum machine availability. Unplanned downtimes can thus be avoided and enormous costs saved as a result.

General Industry

The general industry market, in other words the market for robots outside the automotive industry, offers high growth potential. This is because the robot density in general industry is still relatively low compared with the automotive industry. According to the latest IFR report from October 2019, the robot density in general industry in Germany is 195 robots per 10,000 workers. By comparison, the automotive industry has a robot density of 1,268 robots. In China, the world's largest robot market, the robot density in general industry is 70 and in the automotive industry 732 per 10,000 workers.

The potential in industrialized countries also remains high, above all due to necessary modernization measures and conversions of existing production facilities. Growth opportunities are offered by the electronics, logistics/e-commerce, machine tools, healthcare and food and beverage industries amongst other sectors. The electronics industry is the largest market within general industry, accounting for 25% of all robots installed worldwide; in global terms, it is the second largest sales market after the automotive industry. The electronics industry is one of the sectors heavily affected by the trade war. However, as soon as the global economic environment stabilizes, KUKA expects a significant recovery in the market.

The manufacturing companies in general industry are also facing major challenges. These include the ever shortening product life cycles, the desire of consumers for more individualized products, increasing competitive pressure and the efforts required to further reduce emissions in this sector too. As in the automotive industry, the automation and digitalization of production processes can help to overcome these challenges. This requires the appropriate technologies. Human-robot collaboration and cloud technologies, but also ready-to-use and plug-and-play applications as well as mobility concepts are the right approaches here as well. Companies in general industry too can make their production more efficient and flexible with the digital factory. This is why the sales potential in the automation sector is high. Moreover, increasing global consumption will generally necessitate the expansion of production capacities and thus have a positive effect on the growth of general industry.

China

According to the IFR, around 422,000 industrial robots were installed worldwide in 2018, more than a third of them in China. The robot density (number of robots per 10,000 workers) increased from 11 to 140 there in the period from 2009 to 2018. The comparative figure for Germany was 338 in 2018. This enormous growth in the use of robots in China was achieved primarily due to the high level of investment by automotive manufacturers. But the electronics industry also invested massively. The industry is thus also one of the biggest growth drivers in China.

Over the last few years, foreign and Chinese robot manufacturers have increased their production capacities in China. KUKA also set up a new production facility in Shunde (Guangdong Province) to supplement the existing production in Shanghai. The first robots for the Chinese market were manufactured there at the end of 2019. KUKA is planning to expand the production facility over the next few years and will also develop and manufacture new robot types such as SCARA robots there.

As a result of the global uncertainties described above, growth in the Chinese market has weakened considerably since mid-2018. Investments also declined in the world’s largest robot sales market. According to the IFR, the total number of newly installed robots of all robot types in China decreased by 1% in 2018. For 2019, too, the current forecast anticipates only comparatively low sales growth of around 4%, after more than 30% in the last forecast for 2019.

According to MIR (Mobile Industrial Robots/China), sales in the market for industrial robots of relevance for KUKA declined by 13% in 2019. The sharp decline was mainly due to the reluctance to invest on the part of the largest customers, namely the automotive and electronics industries. According to the IFR, the number of newly installed industrial robots in the automotive industry fell by 7% in 2018. In the electronics industry, the number of robots sold by foreign manufacturers decreased by 9%.

The Chinese market nevertheless remains by far the largest market in the world. Due to its high growth potential, the Chinese robot and automation market is a core element of KUKA’s growth strategy. Demographic developments in China and rising wages will encourage other industries to invest in automation. Rising quality requirements for products and increasing cost pressure will further strengthen the trend towards automated production solutions. Between 2019 and 2022, the IFR forecasts an annual average growth rate of 22%.

KUKA is planning not only to increase its robot sales in China, but also to further expand its market shares, and expects a boost to growth in China as soon as the economic and political conditions stabilize and the investment environment improves. Nevertheless, the present reluctance of customers to invest is currently making the Chinese market difficult and demanding.

Digitalization and IIoT (Industrial Internet of Things)

Global megatrends such as globalization, digitalization and automation will affect all industries and change the world of work. This opens up new opportunities and growth potential for KUKA.

Customers are facing great challenges, as the production of the future creates increasingly complex requirements. To address these, KUKA maintains a regular dialog with its partners and customers, identifying the relevant requirements for future production in a highly dynamic environment. Due to the advance of customization, the ever shorter product life cycles and the increasingly volatile markets, it will be even more important in the future to manufacture an increasing number of variants and models of a product in variable quantities. The trend is thus towards smaller batch sizes that have to be produced economically due to the simultaneously increasing cost pressure. The versatility of a production system will therefore be more important than ever. KUKA already supplies the right solutions for this trend. In several bilateral and multilateral projects, KUKA has focused on the issue of how to design the production of the future in a more flexible and efficient manner. The use of augmented reality (AR) enables the construction and conversion of a production system to be visualized even in the early stages of planning using modern technologies.

To allow machinery to be networked, uniform standards for integrated communication between machines are required. As a founding member and partner of the “Open Industry 4.0 Alliance”, KUKA is committed to overcoming proprietary isolated solutions in order to give a decisive boost to integrated digital transformation in industry.

With integrated communication, data from the production processes can be collected and analyzed, enabling efficiency to be enhanced. However, digitalization is more than just an instrument for increasing efficiency. With the right analytics tools for large volumes of data (“big data”), companies can open up new business areas and new business models. Trends can be recognized at an early stage, products can be optimized according to customer requirements and new service models can be created. The digital image of products, processes and production facilities (digital twins) can be used to investigate and optimize various options for action. In this way, resources are managed efficiently and the automated, resource-optimized processing of production orders is prepared and initiated.

KUKA anticipates major growth opportunities based on further developments in digitalization and IIoT, and will continue to expand its competencies in these areas.

Summary

The current market environment remains difficult. Due to the weak global economy and the continuing uncertainties, customers are still holding back on investments. This applies above all to customers in the automotive and electronics industries. Beyond this, there are risks attributable to the coronavirus crisis, which in many regions of China is leading to major constraints on public and business life as a result of official restrictions. KUKA is working on the assumption that these developments will have a negative impact on the market environment and, based on the current economic forecasts and general conditions while also taking into consideration the current risk and opportunity potential, expects a fall in demand in fiscal 2020. For the Asian market, and for China in particular, KUKA anticipates a stable development compared to the previous year. Markets in the Americas are expected to remain stable, while a decline is predicted in Europe. From a sector perspective, KUKA predicts a stable development of the sales markets in general industry compared with the previous year. A decline is expected for the automotive industry as a whole, and this may also be further intensified for this market segment by the current coronavirus crisis.

KUKA is active in various currency areas around the world. Its key financial indicators are therefore exposed to the influence of changes in exchange rates (transaction and translation risks). The US market, for example, contributes approximately one third of worldwide Group revenues and is therefore one of the most important regions. The US revenues are predominantly generated in US dollars. A US dollar that is strong against the euro thus has a positive effect on the key financial indicators of KUKA Group. On the other hand, a weaker US dollar would have negative effects. The handling of interest rate and currency risks in KUKA Group is described in detail in the opportunity and risk report from page 48 onwards and in the notes from page 64 onwards.

Anticipated business development at KUKA excluding potential effects of coronavirus crisis

Summary	2019 result	2020 outlook [1]
Sales revenues	3,192.6	at prior-year level
EBIT margin	1.5% [2]	rising
Net income for the year	17.8	rising
Investments [3]	151.1	below prior-year level
Free cash flow	20.7	slightly above prior-year level
Dividend per share	0.30 [4]	at prior-year level

[1] It is not yet possible to estimate the effects of the coronavirus crisis on the forecast results and they have therefore not been taken into account in the forecast.

[2] Including all reorganization expenditure

[3] Before financial investments

[4] See Supervisory Board report, page 9

Sales revenues and EBIT margin

On the basis of the currently difficult general conditions and exchange rates, KUKA is expecting revenues at the previous year's level for the full year 2020. The EBIT margin is expected to increase slightly over the previous year within a low single-digit percentage range.

KUKA AG acts as the Group's management holding company with central management responsibilities. The income situation of KUKA AG depends on the results of subsidiaries, its financing activities and the expenditure and income relating to the holding function. This includes, for example, income from the rental of buildings to the KUKA companies at the Augsburg location. A forecast for revenues and the EBIT margin is specified exclusively at Group level due to the purely holding function of KUKA AG.

Net income for the year

In the 2019 fiscal year, KUKA Group generated net income for the year of €17.8 million. The cost reductions in connection with the efficiency program should have a positive effect on the net income for 2020 along with other factors. KUKA thus expects a slight increase in the net income at Group level. KUKA Aktiengesellschaft also forecasts a slight year-on-year improvement in earnings.

In this connection, KUKA AG's earnings in the separate financial statements depend primarily on the profit transfers of the German subsidiaries and on dividends from the subsidiaries.

Research and development/investments

With the aim of securing the long-term success of the company, KUKA is investing in the expansion of its locations worldwide and in innovative products and solutions. In 2020, the expenditure for research and development will primarily focus on software solutions and on the enhancement of existing products in terms of performance, costs and customer benefits. KUKA plans to invest around 5% of the expected revenue volume (about €150 million to €180 million) in research and development in 2020 (2019: €160.5 million).

Free cash flow

KUKA Group's free cash flow is primarily generated from operating profits and the development of working capital. Free cash flow is anticipated to increase in the low double-digit million range. However, it is not yet possible to assess the particular risks and effects of the coronavirus crisis for KUKA on the forecast results at this time.

Dividend

The Executive and Supervisory Boards will recommend to shareholders at the Annual General Meeting on June 19, 2020 that a dividend of €0.30 per share be paid for fiscal 2019.

For the 2020 fiscal year, KUKA plans to maintain its dividend, allowing for the general conditions at the time.

For details, please refer to the report of the Supervisory Board on page 9.

Internal control and risk management system

Basic principles

Pursuant to section 289 para. 4 and section 315 para. 4 of the German Commercial Code (HGB), KUKA Aktiengesellschaft, as a publicly traded parent company, must describe within the management report the key characteristics of its internal control and risk management system with regard to the accounting process. The description must include the accounting processes of the companies included in the consolidated financial statements.

The risk management system comprises all organizational rules and measures related to identifying risk and dealing with entrepreneurial risk (see the opportunity and risk report from page 48 onwards). The internal control system is an integral part of the risk management system.

The internal control system (ICS) comprises all principles, processes and measures introduced to the company by management that result in systematic and transparent risk management. The focus here is on the organizational implementation of management decisions made to ensure the effectiveness and efficiency of business operations (for example, the protection of assets, including the prevention and detection of asset misappropriation), the correctness and reliability of internal and external accounting, and compliance with the legal provisions applicable to the company.

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

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

Structures and processes

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

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

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

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

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

Characteristics of the internal control and risk management system

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

- Identifying the main areas of risk (see the opportunity and risk report from page 48 onwards) and control that affect the (Group) accounting process;
- Quality controls to monitor the (Group) accounting process and the accounting results at the level of the Group Executive Board, the management companies and individual reporting entities included in the consolidated financial statements;
- Preventive control measures in the finance and accounting systems of the Group and the companies included in the consolidated financial statements as well as in operating business performance processes that generate key information for the preparation of the consolidated and annual financial statements and the consolidated management report, including a separation of functions of predefined approval processes in relevant areas;
- Process-integrated monitoring measures such as the principle of dual control for which each material business transaction must be signed or otherwise approved by at least two authorized persons;
- Measures to ensure proper, IT-supported processing of (Group) accounting-related facts and data. These include, for example, central management of access rights to the bookkeeping systems and automated plausibility checks when data are recorded in the reporting and consolidation system;
- Implementation of the control requirements to be met by the accounting-related ICS is defined and monitored by the central Group ICS department, which remains independent of the processes. By means of a defined procedure, the internal controls are documented by the responsible departments and then examined by independent parties – normally the Group ICS department – for functional capability and effectiveness. Any weak points in the control system are targeted through action plans, whose implementation is monitored. Significant control weaknesses and the implementation of action plans are reported to the Executive and Supervisory Boards.

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

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

In its meetings, the Audit Committee of the Supervisory Board regularly reviews the effectiveness of the accounting-related internal control system. The Supervisory Board therefore continuously obtains an appropriate view of the Group's risk situation and monitors ICS effectiveness. In so doing, the Executive Board of KUKA Aktiengesellschaft presents the risks associated with financial reporting at least once per year, outlines the control measures implemented, and monitors their correct execution. Based on the Chinese SOX regulations, to which KUKA is subject on account of its affiliation to Midea Group, an annual review of the accounting-related control system at KUKA is additionally conducted by MIDEA's Group auditor.

Summary

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

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

Disclosures in accordance with section 289a para. 1 and section 315a para. 1 of the German Commercial Code (HGB) including accompanying explanations

The disclosures in accordance with takeover law required by sections 289a para. 1 and 315a para. 1 of the German Commercial Code (HGB) are presented as of December 31, 2019 and explained in the following.

Composition of subscribed capital

As of December 31, 2019, the total share capital of KUKA Aktiengesellschaft amounted to €103,416,222.00 and consisted of 39,775,470 no-par-value bearer shares with pro rata share capital of €2.60 per share. The share capital is fully paid up. All shares have equal rights and each share guarantees its holder one vote at the Annual General Meeting. Shareholders are not entitled to have share certificates issued for their shares (section 4 para. 1 of the Articles of Association). When new shares are issued, the start of profit sharing may be established at variance with section 60 para. 2 of the German Stock Corporation Act (AktG) (section 4 para. 3 of the Articles of Association).

Restrictions affecting voting rights or transfer of shares

There are no restrictions affecting voting rights or transfer of shares.

Shareholdings that exceed 10% of the voting rights

According to the German Securities Trading Act (WpHG), any investor who reaches, exceeds or falls below the voting rights threshold pursuant to section 33 of the WpHG through purchase, sale or by other means is obliged to report this to the company and the German Federal Financial Supervisory Authority (BaFin).

As of December 31, 2019, KUKA Aktiengesellschaft has received notifications from the following investors whose direct or indirect shareholdings in the capital of KUKA Aktiengesellschaft exceed 10% of voting rights:

Midea Group – according to the voting rights notification dated December 21, 2018

1.	Midea Electric Netherlands (I) BV	81.04%	directly
2.	Midea Electric Netherlands (II) BV	13.51%	directly
3.	Guangdong Midea Electric Co., Ltd.	94.55%	allocated
4.	Midea Group Co., Ltd.	94.55%	allocated

Shares with special rights that confer powers of control

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

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

No employees hold an interest in the share capital within the meaning of section 289a para. 1 no. 5 and section 315a para. 1 no. 5 of the German Commercial Code (HGB).

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

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

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

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

The resolution passed at the Annual General Meeting held on May 29, 2019 also authorized the Supervisory Board to amend the wording of section 4, para. 1 and 5 of the Articles of Association following complete or partial execution of the capital increase in accordance with utilization of Authorized Capital 2019 and, if Authorized Capital 2019 has not been fully used by May 28, 2024, following expiration of the authorization.

The Supervisory Board was also authorized by the resolution passed at the Annual General Meeting of May 29, 2019 to amend the wording of section 4, para. 1 and 6 of the Articles of Association as per the respective issue of shares offered under the stock option plan and all other associated amendments to the Articles of Association that only affect the wording. The same applies in the event that the authorization to issue bonds is not exercised after expiry of the period of authorization, or to the extent that Conditional Capital 2019 has not been utilized at the time of expiry of the option or conversion rights, or deadline for fulfillment of the conversion or option obligations.

Executive Board authorization to issue and buy back shares

Authorized capital

As per the resolution of the Annual General Meeting on May 29, 2019 and section 4 para. 5 of the company's Articles of Association, which was added on the basis of this resolution, the Executive Board, subject to approval by the Supervisory Board, is authorized to increase the company's share capital on or before May 28, 2024 by up to €31,024,866.60 through the issue of new shares in exchange for contributions in cash or in kind on one or more occasions (Authorized Capital 2019). The shareholders shall be granted subscription rights. The new shares may also be underwritten by one or more financial institutions or by enterprises operating according to section 53 para. 1 sentence 1 or section 53b para. 1 sentence 1 or para. 7 of the German Banking Act (KWG), as specified by the Executive Board, subject to the obligation that they are offered to the shareholders for subscription (indirect subscription right). However, the Executive Board shall be authorized, subject to approval by the Supervisory Board, to exclude fractional amounts from shareholder subscription rights and to exclude shareholder subscription rights if a capital increase in exchange for contributions in kind takes place for the purpose of acquiring companies or parts of companies or interests in companies or other assets (including third-party claims against the company). Subject to approval by the Supervisory Board, the Executive Board shall be further authorized to exclude shareholder subscription rights in the event of Authorized Capital 2019 being used once or several times in exchange for cash contributions in an amount not exceeding 10% of the existing share capital at the time this authorization comes into effect and – if this value is lower – at the time this authorization is exercised, in order to issue the new shares at a price that is not significantly lower than the price of the company's shares already quoted on the stock exchange at the time the new share issue price is finalized. Shares sold as a result of, and during the term of, the authorization granted at the Annual General Meeting of May 29, 2019 in accordance with section 71 para. 1 no. 8 sentence 5 AktG in conjunction with section 186 para. 3 sentence 4 AktG shall count towards the aforementioned 10% threshold. Furthermore, this 10% threshold shall also include shares issued for the purpose of servicing warrant or convertible bonds, participation rights or participating bonds or a combination of these instruments, provided that these instruments were issued as a result of, and during the term of, an authorization granted at the Annual General Meeting of May 29, 2019 in accordance with the appropriate application of section 186 para. 3 sentence 4 AktG.

The Executive Board is authorized, subject to approval by the Supervisory Board, to stipulate other details regarding the capital increase and its execution, in particular with regard to share rights and the terms and conditions relating to the issuance of shares.

Conditional capital

Section 4 para. 6 of the Articles of Association stipulates a conditional increase in share capital by up to €15,512,432.00, divided into up to 5,966,320 no-par-value bearer shares (Conditional Capital 2019).

The conditional capital increase will be applied to grant no-par-value shares when conversion or option rights are exercised (or upon fulfillment of corresponding option/conversion obligations) or when KUKA Aktiengesellschaft exercises its option to grant no-par-value shares of KUKA Aktiengesellschaft instead of paying wholly or partially the monies due to the holders of conversion or warrant bonds, participation rights or participating bonds (or a combination of these instruments), issued by KUKA Aktiengesellschaft or a dependent Group company up to May 28, 2024 in exchange for cash contributions as a result of the authorization granted by the shareholders at the Annual General Meeting of May 29, 2019. Furthermore, new shares will be issued according to the condition in the aforementioned authorization resolution at the option or conversion price to be determined respectively. The conditional capital increase shall only be conducted in the event of an issue of bonds to which option or conversion rights or obligations are attached in accordance with the authorization by shareholders at the Annual General Meeting of May 29, 2019 and only to the extent that option or conversion rights are exercised or to the extent that holders of bonds obligated to convert or exercise their options fulfill their conversion or option obligations, or to the extent that KUKA Aktiengesellschaft exercises its option to grant no-par-value shares of KUKA Aktiengesellschaft wholly or partially instead of paying the monies due and provided in each case no cash settlement is granted or treasury shares or shares of another listed company are used to service the bonds. The new shares issued shall participate in the profits as of the beginning of the financial year in which they are issued. The Executive Board is authorized, subject to approval from the Supervisory Board, to define the further details of the execution of the conditional capital increase.

Acquisition of treasury shares

As per the resolution passed by the Annual General Meeting on May 29, 2019, the company is authorized, until May 28, 2024, to buy back its own shares in an amount not to exceed 10% of the share capital existing at the time the resolution was passed via the stock market or in the form of a public purchase offer addressed to all shareholders by the company. In doing so, the purchase price (excluding transaction costs) may not be more than 10% higher or lower than the average stock market price defined in detail in the authorization.

The company may exercise this authorization in whole or partial amounts, once or several times; however, it may also be executed by dependent companies or companies in a majority holding of the company, or through a third party on behalf of the company or its dependants.

Pursuant to the above resolution, the Executive Board is also authorized, subject to approval by the Supervisory Board, to treat the treasury shares acquired subject to the exclusion of shareholder subscription rights on the basis of that and earlier authorizations as follows:

(1) To sell the treasury shares acquired to third parties in connection with company mergers or the acquisition of companies, or parts of companies, or interests in companies, or for the purpose of acquiring other assets (including claims of third parties against the company);

(2) To sell the treasury shares acquired by means other than via the stock exchange or an offer to all shareholders, provided the shares are sold for cash at a price that is not substantially lower than the quoted stock market price of treasury shares at the time of sale.

    However, this authorization only applies subject to the proviso that the shares sold subject to the exclusion of subscription rights pursuant to section 186 para. 3 sentence 4 of the German Stock Corporation Act (AktG) may not, in total, exceed 10% of the share capital, whether on the effective date of the authorization or on the date on which it is exercised. The limit of 10% of the share capital is to include shares

    (a) that are issued to service bonds with warrants or convertible bonds, participation rights or participating bonds, or a combination of these instruments, provided the instruments were issued on the basis of an authorization resolved by the Annual General Meeting of May 29, 2019 pursuant to the corresponding application of section 186 para. 3 sentence 4 of the German Stock Corporation Act (AktG);

    (b) that are issued by exercising an authorization – in effect on the date on which the above authorization took effect or that was resolved by the Annual General Meeting of May 29, 2019, from authorized capital pursuant to section 186 para. 3 sentence 4 of the German Stock Corporation Act (AktG), under exclusion of subscription rights;

(3) To use the treasury shares acquired to introduce the treasury stock on foreign stock exchanges on which they have not previously been admitted for trading.

Treasury shares acquired on the basis of this authorization or authorizations granted at an earlier time may be canceled without requiring a further resolution at the Annual General Meeting for the cancelation. Cancelation leads to reduction of the share capital. However, the cancelation can also be effected by means of a simplified process without the reduction of share capital by adjusting the proportionate amount of share capital of the remaining shares according to section 8 para. 3 of the German Stock Corporation Act (AktG). The Executive Board is in this case authorized to change the disclosure of the number of shares in the Articles of Association accordingly. This authorization for the acquisition of treasury shares, as well as the resale or cancelation of such shares, may be used once or several times, in whole or in part.

Significant company agreements that are conditional upon a change of control, and the resulting impact

Employment contracts of Executive Board members

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

Syndicated loan agreement

KUKA Aktiengesellschaft and its associated companies signed a new syndicated loan agreement on February 1, 2018 with a consortium of banks led by Commerzbank AG, Deutsche Bank AG Deutschlandgeschäft branch, Deutsche Bank Luxembourg S.A., UniCredit Bank AG, Landesbank Baden-Württemberg, Bayerische Landesbank, BNP Paribas S.A. German branch, DZ Bank AG Zentral-Genossenschaftsbank (Frankfurt am Main) and Credit Suisse AG. According to the terms of the loan agreement, the creditors provide working capital and guarantee lines of up to €520,000,000. The loan agreement had an original term of 5 years up to February 1, 2023 and was subject to two extension options. Following the approval of all syndicate banks for the second extension option in December 2019, the loan agreement now runs until February 1, 2025 with an unchanged structure.

The loan agreement covers the main working capital requirements of KUKA Group (including the furnishing of bank guarantees). The contract contains a change-of-control clause that is typical in the industry, under the terms of which the syndicated banks may demand repayment of the loan in the event that a shareholder (or group of shareholders acting in concert) acquires control of at least 30% of the voting rights of KUKA Aktiengesellschaft, or otherwise has the ability to direct the business policy of the company. A change of the direct owner within Midea Group is not affected by this provision as long as Midea Group Co., Ltd. directly or indirectly holds 100% of the shares and voting rights of the new owner. The creditors may also declare the loan agreement due for repayment in the cases of a delisting, a squeeze-out or the conclusion of a control and/or profit transfer agreement with a company of Midea Group.

Promissory note loan 2015

On October 9, 2015, led by Landesbank Baden-Württemberg and UniCredit Bank AG, KUKA Aktiengesellschaft issued a promissory note loan with an overall volume of €250,000,000 and staggered terms to 2020 and 2022.

The terms and conditions of the promissory note loan contain a standard change-of-control clause. Accordingly, immediately it learns of a change of control, KUKA Aktiengesellschaft must disclose this in accordance with the terms and conditions of the loan. The lenders then have the right, within 30 days of receiving notification of a change of control, to demand repayment of their (pro rata) loan at the next interest due date after receipt of the request for repayment and the interest due up to the date of repayment. A “change of control” within the meaning of the terms and conditions of the loan is given if a person or persons acting in concert directly or indirectly (i) either hold more than 30% of the voting shares, (ii) hold more than 30% of the voting rights in the company and/or (iii) otherwise have the possibility of directing the company’s business policy.

US assignable loan of KUKA Toledo Production Operations LLC

On August 7, 2018 and September 6, 2018, led by Deutsche Bank AG, Landesbank Baden-Württemberg and UniCredit Bank AG, KUKA Toledo Production Operations LLC (“KTPO”) as borrower and KUKA Aktiengesellschaft as guarantor issued a total of four assignable loans with an overall volume of USD 150,000,000 and staggered terms to 2020, 2022 and 2023. The assignable loans serve to finance the investment of KTPO in connection with a new production facility at the Fiat Chrysler plant in Toledo, Ohio/USA.

The terms and conditions of the assignable loans contain a standard change-of-control clause. Accordingly, immediately it learns of a change of control, KUKA Aktiengesellschaft must disclose this in accordance with the terms and conditions of the loan. In this case, the lenders have the right, within 15 days of receiving notification of a change of control, to terminate the assignable loan agreements prematurely and demand repayment of their (pro rata) loan. A “change of control” within the meaning of the terms and conditions of the assignable loans is given if a person or persons acting in concert directly or indirectly (i) either hold more than 30% of the voting shares, (ii) hold more than 30% of the voting rights in KTPO or KUKA Aktiengesellschaft and/or (iii) otherwise have the possibility of directing the business policy of KTPO or KUKA Aktiengesellschaft. A change of the direct owner within Midea Group is not affected by this provision as long as Midea Group Co., Ltd. directly or indirectly holds 100% of the shares and voting rights of the new owner. Also excluded is restructuring within KUKA Group, i. e. a change of control at KTPO insofar as control is exercised by a KUKA Group company.

Agreements concluded between the company and members of the Executive Board or employees governing compensation in the event of a takeover bid

No agreements have been concluded between the company and members of the Executive Board or employees governing compensation in the event of a takeover bid. The change-of-control clauses in the employment contracts of the Executive Board members do not constitute compensation clauses as defined in sections 289a para. 4 sentence 1 no. 9 and 315a para. 4 sentence 1 no. 9 of the German Commercial Code (HGB).

Declaration regarding corporate governance

Reference is made to published information on the KUKA AG website for the declaration regarding corporate governance pursuant to section 289f of the German Commercial Code (HGB): www.kuka.com/en-de/investor-relations/corporate-governance/corporate-management.

Non-financial declaration

Please refer to the website at www.kuka.com for the non-financial declaration pursuant to sections 315b, 315c and 289c of the German Commercial Code (HGB).

Forward-looking statements

The annual 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 key performance indicators contained in the annual report have been rounded in accordance with standard commercial practice. In individual cases, it is therefore possible that figures in this report do not add up exactly to the total stated and that percentages do not precisely correspond to the values indicated.

Group financial statements

Group financial statements

Group income statement

of KUKA Aktiengesellschaft for the period January 1 to December 31, 2019

in € millions	Notes	2018	2019
Sales revenues	**1**	**3,242.1**	**3,192.6**
Cost of sales	2	–2,516.2	–2,515.6
Gross earnings from sales		**725.9**	**677.0**
Selling expenses	2	–319.9	–291.6
Research and development costs	2	–151.9	–160.5
General and administrative expenses	2	–246.7	–190.4
Other operating income	3	45.8	30.7
Other operating expenses	3	–16.6	–13.8
Loss from companies consolidated at equity		–2.3	–3.6
Earnings before interest and taxes (EBIT)		**34.3**	**47.8**
Amortization		86.9	128.7
Earnings before interest, taxes, depreciation and amortization (EBITDA)		**121.2**	**176.5**
Depreciation of financial investments	4	–0.1	–2.1
Interest income	4	14.1	28.6
Interest expense		–13.4	–19.9
Financial result		**0.6**	**6.6**
Earnings before taxes		**34.9**	**54.4**
Taxes on income	5	–18.3	–36.6
Earnings after taxes		**16.6**	**17.8**
(of which attributable to minority interests)		(3.9)	(8.1)
(of which attributable to shareholders of KUKA AG)	6	(12.7)	(9.7)
Earnings per share (undiluted/diluted) in €		**0.32**	**0.24**

Group statement of comprehensive income

of KUKA Aktiengesellschaft for the period January 1 to December 31, 2019

in € millions	Notes	2018	2019
Earnings after taxes		**16.6**	**17.8**
Items that may potentially be reclassified to profit or loss			
Translation adjustments		25.4	10.9
Third-party translation adjustments		1.1	2.2
Items that are not reclassified to profit or loss			
Changes in equity instruments (FVOCI)		–	–0.2
Changes of actuarial gains and losses	23	–5.8	–19.5
Deferred taxes on changes of actuarial gains and losses		0.6	1.3
Changes recognized directly in equity		**21.3**	**–5.3**
Comprehensive income		**37.9**	**12.5**
(of which attributable to minority interests)		(4.9)	(10.3)
(of which attributable to shareholders of KUKA AG)		(33.0)	(2.2)

Group cash flow statement [1]

of KUKA Aktiengesellschaft for the financial year 2019

in € millions	2018	2019
Earnings after taxes	**16.6**	**17.8**
Income taxes	14.7	34.0
Net interest	–0.9	–8.6
Amortization of intangible assets	44.9	47.0
Depreciation of tangible assets	42.0	44.9
Depreciation of financial investments	0.1	2.1
Depreciation of right-of-use assets	–	36.8
Other non-payment-related income	–6.3	–23.3
Other non-payment-related expenses	17.9	16.4
Cash earnings	**129.0**	**167.1**
Result on the disposal of assets	0.3	1.2
Changes in provisions	29.3	4.5
Changes in current assets and liabilities		
Changes in inventories	–74.1	121.5
Changes in receivables and deferred charges	32.2	8.1
Changes in liabilities and deferred income (excl. financial debt)	–93.0	–70.3
Income taxes paid	–32.8	–13.3
Investments/financing matters affecting cash flow	–39.1	–4.3
Cash flow from operating activities	**–48.2**	**214.5**
Payments from disposals of fixed assets	2.1	3.3
Payments for capital expenditures on intangible assets	–55.2	–39.6
Payments for capital expenditures on tangible assets	–208.4	–111.5
Proceeds from investment in financial investments and at-equity investments	104.1	15.8
Payments for investment in financial investments	–	–12.7
Payments for/proceeds from financial assets related to short-term financial management	–	–50.0
Payments received from disposals of consolidated companies and other business units	4.0	–
Payments for the acquisition of consolidated companies and other business units	–23.0	–26.5
Interest received	10.9	27.4
Cash flow from investment activities	**–165.5**	**–193.8**
Free cash flow	**–213.7**	**20.7**
Dividend payments	–19.9	–11.9
Proceeds from/payments for the acceptance/repayment of bank loans, promissory note loans and affiliated companies	115.8	147.6
Payments from grants received	5.0	4.1
Interest paid	–11.3	–18.6
Repayment of leases	–	–33.4
Cash flow from financing activities	**89.6**	**87.8**
Payment-related changes in cash and cash equivalents	**–124.1**	**108.5**
Changes in cash and cash equivalents related to the scope of consolidation	379.4	–1.6
Exchange-rate-related and other changes in cash and cash equivalents	–0.3	–0.7
Changes in cash and cash equivalents	**255.0**	**106.2**
(of which net increase/decrease in restricted cash)	(0.1)	(0.0)
Cash and cash equivalents at the beginning of the period	223.6	478.6
(of which restricted cash)	(0.4)	(0.5)
Cash and cash equivalents at the end of the period	**478.6**	**584.8**
(of which restricted cash)	(0.5)	(0.5)

[1] See page 111 in the notes for further information on the Group cash flow statement

Group balance sheet

of KUKA Aktiengesellschaft as at December 31, 2019

Assets

in € millions	Notes	Dec. 31, 2018	Adjustments	Jan. 1, 2019	Dec. 31, 2019
Non-current assets					
Intangible assets	(7)	563.9	–	563.9	565.5
Property, plant and equipment	(8)	493.7	–	493.7	366.6
Financial investments	(9)	8.7	–	8.7	24.1
Investments accounted for at equity	(10)	13.9	–	13.9	34.0
Right-of-use assets	(11)	–	134.0	134.0	135.0
		1,080.2	**134.0**	**1,214.2**	**1,125.2**
Finance lease receivables	(11)	1.0	–	1.0	152.5
Other long-term receivables and other assets	(15)	18.7	–	18.7	20.0
Deferred taxes	(5)	90.5	–	90.5	86.7
		1,190.4	**134.0**	**1,324.4**	**1,384.4**
Current assets					
Inventories	(12)	466.8	–	466.8	344.5
Receivables and other assets					
Trade receivables	(13)	415.1	–	415.1	443.5
Contract assets	(14)	493.9	–	493.9	461.5
Finance lease receivables	(11)	0.6	–	0.6	29.4
Income tax receivables		42.8	–	42.8	26.1
Other assets, prepaid expenses and deferred charges	(15)	130.3	–	130.3	152.4
		1,082.7	–	1,082.7	1,112.9
Cash and cash equivalents	**(16)**	**478.6**	**–**	**478.6**	**584.8**
		2,028.1	**–**	**2,028.1**	**2,042.2**
		3,218.5	**134.0**	**3,352.5**	**3,426.6**

Equity and liabilities

in € millions	Notes	Dec. 31, 2018	Adjustments	Jan. 1, 2019	Dec. 31, 2019
Equity	**(17)**				
Subscribed capital	(18)	103.4	–	103.4	103.4
Capital reserve	(19)	306.6	–	306.6	306.6
Revenue reserve	(20)	669.9	–	669.9	659.8
Minority interests	(21)	259.7	–	259.7	278.8
		1,339.6	**–**	**1,339.6**	**1,348.6**
Non-current liabilities					
Financial liabilities	(25+26)	380.5	–	380.5	232.0
Financial liabilities to affiliated companies		–	–	–	150.0
Lease liabilities	(11)	–	101.6	101.6	105.8
Other liabilities	(27)	35.9	–	35.9	43.7
Pension provisions and similar obligations	(23)	110.4	–	110.4	116.9
Deferred taxes	(5)	42.4	–	42.4	41.8
		569.2	**101.6**	**670.8**	**690.2**
Current liabilities					
Financial liabilities	(25+26)	5.2	–	5.2	152.6
Lease liabilities	(11)	–	32.4	32.4	32.5
Trade payables		402.7	–	402.7	402.3
Contract liabilities	(14)	406.8	–	406.8	337.1
Accounts payable to affiliated companies		0.1	–	0.1	0.1
Income tax liabilities		40.5	–	40.5	46.1
Other liabilities and deferred income	(27)	287.7	–	287.7	229.9
Other provisions	(24)	166.7	–	166.7	187.2
		1,309.7	**32.4**	**1,342.1**	**1,387.8**
		3,218.5	**134.0**	**3,352.5**	**3,426.6**

Development of Group equity

of KUKA Aktiengesellschaft for the financial year 2019

Notes	18	18	19
in € millions	Number of shares outstanding	Subscribed capital	Capital reserve
Jan. 1, 2018	**39,775,470**	**103.4**	**306.6**
Earnings after taxes	–	–	–
Other income	–	–	–
Comprehensive income	**–**	**–**	**–**
Dividend of KUKA AG	–	–	–
Difference from the valuation of associates not affecting net income	–	–	–
Change in scope of consolidation / other changes	–	–	–
Dec. 31, 2018 / Jan. 1, 2019	**39,775,470**	**103.4**	**306.6**
Earnings after taxes	–	–	–
Other income	–	–	–
Comprehensive income	**–**	**–**	**–**
Dividend of KUKA AG	–	–	–
Change in scope of consolidation / other changes	–	–	–
Dec. 31, 2019	**39,775,470**	**103.4**	**306.6**

20					21	
Revenue reserves						
Translation gains/losses	FVOCI measurement	Actuarial gains and losses	Annual net income and other revenue reserves	Equity to shareholders	Minority interests	Total
20.1	**–**	**–23.1**	**455.4**	**862.4**	**–0.5**	**861.9**
–		–	12.7	12.7	3.9	16.6
25.4		–5.2	–	20.2	1.1	21.3
25.4	**–**	**–5.2**	**12.7**	**32.9**	**5.0**	**37.9**
–		–	–19.9	–19.9	–	–19.9
–		–	–0.5	–0.5	–	–0.5
–		–	205.0	205.0	255.2	460.2
45.5	**–**	**–28.3**	**652.7**	**1,079.9**	**259.7**	**1,339.6**
–	–	–	9.7	9.7	8.1	17.8
10.9	–0.2	–18.2	–	–7.5	2.2	–5.3
10.9	**–0.2**	**–18.2**	**9.7**	**2.2**	**10.3**	**12.5**
–	–	–	–11.9	–11.9	–	–11.9
–	–	–	–0.4	–0.4	8.8	8.4
56.4	**–0.2**	**–46.5**	**650.1**	**1,069.8**	**278.8**	**1,348.6**

Group notes

Group segment reporting[1]

of KUKA Aktiengesellschaft for the financial year 2019

	Systems		Robotics		Swisslog	
in € millions	2018	2019	2018	2019	2018	2019
Orders received	959.8	858.0	1,196.5	1,037.1	601.1	750.2
Order backlog	713.2	614.3	395.9	275.8	531.6	653.9
Group external sales revenues	881.4	911.9	1,101.9	1,034.0	601.5	594.1
in % of Group sales revenues	27.2%	28.6%	34.0%	32.4%	18.6%	18.6%
Intra-Group sales revenues	44.0	13.5	145.4	125.2	5.6	5.9
Sales revenues	**925.4**	**925.4**	**1,247.3**	**1,159.2**	**607.1**	**600.0**
Gross earnings from sales	**115.8**	**97.8**	**393.4**	**361.1**	**103.7**	**111.3**
in % of sales revenues of the segment	12.5%	10.6%	31.5%	31.2%	17.1%	18.6%
Earnings before interest and taxes (EBIT)	**29.5**	**26.9**	**80.9**	**37.7**	**–0.2**	**10.5**
in % of sales revenues of the segment	3.2%	2.9%	6.5%	3.3%	0.0%	1.8%
in % of average capital employed (ROCE)	11.3%	8.9%	21.9%	8.8%	–0.2%	8.6%
One-off effects[2]	–	–	28.7	–	–	–
EBIT adjusted[2]	29.5	26.9	109.6	37.7	–0.2	10.5
EBIT adjusted[2] in % sales revenues of the segment	3.2%	2.9%	8.8%	3.3%	0.0%	1.8%
EBIT adjusted[2] in % of capital employed (ROCE)	11.3%	8.9%	29.6%	8.8%	–0.2%	8.6%
Earnings before interest, taxes, depreciation and amortization (EBITDA)	**37.8**	**45.2**	**143.6**	**83.1**	**16.2**	**33.7**
in % of sales revenues of the segment	4.1%	4.9%	11.5%	7.2%	2.7%	5.6%
One-off effects[2]	–	–	28.7	–	–	–
EBITDA adjusted[2]	37.8	45.2	172.3	83.1	16.2	33.7
EBITDA adjusted[2] in % of sales revenues of the segment	4.1%	4.9%	13.8%	7.2%	2.7%	5.6%
Capital employed (annual average)	260.7	301.1	369.7	430.7	100.5	122.7
Capital employed (end of financial year)	314.4	287.8	417.9	443.4	93.7	151.6
Assets	718.4	721.8	779.3	766.0	347.7	474.5
Liabilities	417.8	449.0	345.7	334.8	274.7	328.1
Investments accounted for at equity	–	–	4.4	4.7	–	23.3
Earnings of investments accounted for at equity	–	–	0.4	0.3	–	–0.3
Capital expenditure	143.0	24.3	49.1	40.1	12.5	12.0
Scheduled depreciation/amortization of intangible and tangible assets	8.2	7.8	29.8	35.3	11.2	11.0
Depreciation/amortization of interest capitalized under intangible and tangible assets	0.0	0.0	0.1	0.1	–	–
Number of employees (Dec. 31)	3,112	3,208	5,957	5,502	1,975	2,168

[1] See page 111 for more information on Group segment reporting

[2] One-off effects in 2018 due to growth investments and reorganization expenditure
One-off effects in 2019: presentation not adjusted

Swisslog Healthcare		China		KUKA AG and other companies		Reconciliation and consolidation		Group	
2018	2019	2018	2019	2018	2019	2018	2019	2018	2019
234.5	251.3	535.9	456.4	0.1	0.5	−222.6	−162.8	3,305.3	3,190.7
216.4	231.4	282.9	229.2	0.0	0.0	−84.3	−37.2	2,055.7	1,967.4
212.9	222.4	502.5	440.1	0.0	0.4	−58.1	−10.3	3,242.1	3,192.6
6.6%	7.0%	15.5%	13.8%	0.0%	0.0%	–	–	100.0%	100.0%
0.0	−0.1	25.4	18.1	106.5	123.8	−326.9	−286.4	–	–
212.9	**222.3**	**527.9**	**458.2**	**106.5**	**124.2**	**−385.0**	**−296.7**	**3,242.1**	**3,192.6**
71.7	**73.1**	**54.6**	**37.9**	**108.7**	**123.8**	**−122.0**	**−128.0**	**725.9**	**677.0**
33.7%	32.9%	10.3%	8.3%	–	–	–	–	22.4%	21.2%
−4.7	**−10.0**	**−5.4**	**3.6**	**−64.7**	**−22.5**	**−1.1**	**1.6**	**34.3**	**47.8**
−2.2%	−4.5%	−1.0%	0.8%	–	–	–	–	1.1%	1.5%
−4.2%	−6.6%	−6.0%	2.3%	–	–	–	–	2.9%	3.5%
4.3	–	–	–	8.4	–	7.3	–	48.7	–
−0.4	−10.0	−5.4	3.6	−56.3	−22.5	6.2	1.6	83.0	47.8
−0.2%	−4.5%	−1.0%	0.8%	–	–	–	–	2.6%	1.5%
−0.4%	−6.6%	−6.0%	2.3%	–	–	–	–	7.0%	3.5%
8.7	**4.6**	**−0.4**	**14.4**	**−41.4**	**−4.2**	**−43.3**	**−0.3**	**121.2**	**176.5**
4.1%	2.1%	−0.1%	3.1%	–	–	–	–	3.7%	5.5%
4.3	–	–	–	8.4	–	7.3	–	48.7	–
13.0	4.6	−0.4	14.4	−33.0	−4.2	−36.0	−0.3	169.9	176,5
6.1%	2.1%	−0.1%	3.1%	–	–	–	–	5.2%	5.5%
112.3	152.5	90.2	155.6	274.5	244.0	−22.9	−32.3	1,185.0	1,374.3
122.7	182.3	143.4	167.8	291.5	196.4	−31.9	−32.4	1,351.7	1,396.9
268.1	331.8	405.3	395.7	848.6	771.5	−718.0	−706.1	2,649.4	2,755.2
99.9	111.6	261.9	204.6	108.4	90.1	−113.0	−76.1	1,395.4	1,442.1
9.4	6.4	–	23.3	–	–	0.1	−23.7	13.9	34.0
−2.5	−3.3	–	−0.1	–	–	−0.2	−0.2	−2.3	−3.6
11.5	12.6	41.9	13.8	38.1	48.4	−0.7	−0.1	295.4	151.1
4.9	7.2	5.0	7.3	15.0	16.0	12.7	7.2	86.8	91.8
–	–	–	–	–	–	–	–	0.1	0.1
931	1,159	1,514	1,382	746	697	–	−102	14,235	14,014

General comments

Accounting principles

KUKA Aktiengesellschaft, registered at the district court of Augsburg under HRB 22709 and headquartered in Augsburg, has prepared its consolidated financial statements for the period ending December 31, 2019 according to the International Financial Reporting Standards (IFRS) of the International Accounting Standards Board (IASB) applicable and endorsed by the European Union as at the balance sheet date. The term IFRS also includes all valid international accounting standards (IAS). The interpretations of the Standing Interpretations Committee (SIC) and the International Financial Reporting Standards Interpretations Committee (IFRS IC) – supplemented by the guidelines stipulated in section 315 a para. 1 of the German Commercial Code (HGB) – are also taken into consideration.

The accounting policies used conform to the methods applied in the previous year. Exceptions from this are the standards and interpretations for which application is mandatory for the first time in the 2019 fiscal year and the other reporting changes described under “Changes in accounting and valuation methods”. The consolidated financial statements comply with German law and the currency reported in these statements is the euro. Unless otherwise noted, all amounts in the notes to the accounts are stated in millions of euros (€ million). The key performance indicators in the entire annual report have been rounded in accordance with standard commercial practice. In individual cases, it is therefore possible that figures in this report do not add up exactly to the total stated and that percentages do not precisely correspond to the values indicated.

With the exception of specific financial instruments reported in fair values, the Group’s consolidated financial statements are prepared based on historical costs. In this case, fair value is defined under IFRS 13 as the price that would be paid by independent market participants in an arm’s length transaction on the measurement date if an asset were sold or a liability transferred.

KUKA Group does not carry any assets with an indefinite useful life with the exception of goodwill and specific brand names.

The Group’s consolidated income statement is prepared using the cost of sales method. The classification regulations of IAS 1 are applied in the consolidated financial statements. The presentation in the Group’s consolidated balance sheet distinguishes between current and non-current assets and liabilities.

The identically worded declarations of compliance with the German Corporate Governance Code pursuant to section 161 of the German Stock Corporation Act (AktG) made by the Executive Board on January 30, 2020 and the Supervisory Board on February 7, 2020 can be accessed on the Internet through the company’s website (www.kuka.com). The Executive Board prepared the consolidated financial statements on March 3, 2020.

KUKA Aktiengesellschaft is a 94.55% indirect subsidiary of Midea Group Co. Ltd., Foshan City, Guangdong Province/China and is included in its consolidated financial statements. These statements are available on the website www.cninfo.com.cn or directly on the website of Midea Group Co. Ltd. at https://www.midea-group.com/Investors/reports.

Scope of consolidation

KUKA Group’s scope of consolidation changed in the course of the fiscal year due to deconsolidations and mergers. Two first-time consolidations took place in the at equity category.

The following table shows the development of the scope of consolidation by region for the 2019 fiscal year:

	EMEA		Americas		APAC		Total	
Country	Consolidated companies	At equity companies	Consolidated companies	At equity companies	Consolidated companies	At equity companies	Consolidated companies	At equity companies
Jan. 1, 2019	**56**	**–**	**20**	**1**	**26**	**2**	**102**	**3**
First-time consolidations	–	–	–	–	–	2 [1]	–	2
Mergers	–	–	–2 [1]	–	–	–	–2	–
Deconsolidations	–1 [1]	–	–	–	–1 [1]	–	–2	–
Total changes	–1	–	–2	–	–1	2	–4	2
Dec. 31, 2019	**55**	**–**	**18**	**1**	**25**	**4**	**98**	**5**

[1] The changes in the scope of consolidation are explained below.

With the introduction of the new organizational structure (KBO), the allocation of companies has also changed slightly. In order to ensure comparability, the Group structure was reconciled as at December 31, 2018. As at December 31, 2019, the Systems segment includes 14 fully consolidated companies, unchanged from the previous year. As at December 31, 2019, the Robotics division consists of 42 fully consolidated companies and two companies accounted for at equity, which represents a decrease of three companies compared to December 31, 2018. Two companies were merged into a third company and one company was deconsolidated. In the Swisslog division, 18 companies are fully consolidated (December 31, 2018: 19 companies) and two are accounted for at equity (December 31, 2018: none). Based on a management approach, companies are reported both at Swisslog and in the China segment. Their figures are shown in both segments and eliminated again via the reconciliation column in order to provide an accurate picture of the Group. Unchanged from December 31, 2018, the Swisslog Healthcare business segment still has 14 fully consolidated companies and one company accounted for at equity as at December 31, 2019. The management approach results in a double disclosure at Swisslog Healthcare and in the China segment, which is eliminated in the reconciliation column as described above. In addition to the companies with double reporting, the China segment includes a further six fully consolidated units (December 31, 2018: six companies), which are reported exclusively in this segment. The Other category comprises four fully consolidated companies at the end of the year under review (December 31, 2018: four units). The number of companies consolidated either fully or at equity therefore decreased from 105 in 2018 to 103 in 2019.

Mergers

In the 2019 fiscal year, two mergers in the Robotics segment took place in the Americas region. Reis Robotics do Brasil Ltda. and KUKA Industries Brasil Sistemas de Automoção Ltda. were merged with KUKA Roboter do Brasil Ltda. There is no effect on comparability with the previous year, as the mergers were carried out within one segment and the figures as at December 31, 2018 were reconciled to the new structure.

Other acquisitions

12.8% of the shares in Servotronix Motion Control Ltd./Israel were acquired for a low double-digit million amount in the third quarter of 2019. They are classified at fair value through other comprehensive income. Servotronix Motion Control Ltd./Israel develops and manufactures automation solutions with a focus on drive technology and thus supplements the product portfolio of the Robotics business segment.

Also in the third quarter of the year under review, 13.2% of the shares in Pharmony SA/Luxembourg were purchased for a low single-digit million amount. The investment, which is allocated to the Swisslog Healthcare business segment, offers cloud-based pharmacy management software to simplify business processes in pharmacies.

Establishment of joint ventures

As of January 3, 2019, Midea Group acquired a direct 50% stake in each of two Chinese companies of KUKA Group in the form of a cash contribution. The previously fully consolidated Swisslog company was deconsolidated due to the legal control structure and a 50% at-equity investment was recognized. The second Swisslog Healthcare subsidiary remains fully consolidated with a 50% minority interest due to its control structure within KUKA Group. Overall, Midea Group invested a mid-double-digit million euro amount. In accordance with the management approach, the two companies are reported in both their own segment, Swisslog or Swisslog Healthcare, and the China segment. The resulting double recognition is eliminated again when preparing the consolidated financial statements.

A new Chinese joint venture with Midea Group was established in the third quarter of 2019. This company is also allocated to the Swisslog business segment. Both parties own 50% of the shares, but recognition in KUKA Group is at equity due to the control structure. Both parties made the contractually agreed payments.

Consolidation principles

Pursuant to the rules of full consolidation, subsidiaries are included in the KUKA Group financial statements if they are controlled directly or indirectly in accordance with the control concept of IFRS 10. Control exists if there is a right to the variable returns and KUKA Group is able to use the control over the company such that the level of returns from the company can be influenced. The date on which control is effectively gained or lost is decisive for the inclusion of a company in consolidation or for its deconsolidation.

The consolidated financial statements are based on the financial statements of KUKA Aktiengesellschaft and those of the consolidated subsidiaries and were prepared according to the uniform accounting policies for the Group. Capital consolidation takes place by offsetting the carrying amounts of the investment against the pro rata newly measured equity capital of the subsidiaries at the time of acquisition. In line with IFRS 3, any positive differences are capitalized as goodwill under intangible assets. Any negative differences are recognized in the income statement.

Intra-Group sales, expenses and income as well as receivables and liabilities are offset and any inter-company profits and losses are eliminated. The necessary deferred taxes are recognized for consolidation transactions.

If KUKA AG issues guarantees and warranties on behalf of consolidated subsidiaries, they are eliminated provided they have no external effect.

Currency translation

Receivables and payables denominated in foreign currency are converted at the valid middle exchange rate at the balance sheet date and any translation gains or losses are recognized in the income statement. The allocation of a translation gain or loss depends on the functional area in which this has occurred. This is reported under the cost of sales, for example, if the translation gain or loss resulted from a foreign currency transaction in respect of supplies and services. If, on the other hand, translation gains or losses occur in connection with loan transactions, they must be added to the financing transactions and are reported in the interest result.

The annual financial statements of foreign companies that are included in the consolidated financial statements are converted from their functional currency into euro in accordance with IAS 21. These are the respective local currencies as the companies operate predominantly within their currency area. The only exception is KUKA Robotics Hungária Ipari Kft., Taksony/Hungary, whose functional currency is the euro.

If new derivative goodwill results from the acquisition of foreign subsidiaries, the Group treats it as an asset of the economically independent subsidiary and translates this goodwill at the closing rate, if necessary, pursuant to IAS 21.47. Currency differences ensuing therefrom are recognized in the foreign currency translation reserve. Unrealized price differences from the translation of equity-replacing loans to subsidiaries in foreign currency are reported directly in the aggregate income/loss and so recognized directly in equity. These effects are reversed with an impact on income if there is a loss of control.

Derivative goodwill recognized prior to January 1, 2005, and also equity are translated using historical rates. Expenses and income are translated at the average exchange rate for the year. If differences arise from the translation of assets and liabilities denominated in foreign currencies compared to the prior year, they are recognized in equity under the revenue reserves with no impact on income. The same method is applied for translation differences between the income statement and the balance sheet. Existing exchange rate differences are reversed to income when a company leaves the Group.

In addition, leases that fall within the scope of IFRS 16 exist in currencies that do not correspond to the functional currency of the respective subsidiary. Here, the leases are first translated into the functional currency of the subsidiary and then into the Group currency. These currencies have also been included in the table below.

The exchange rates used for the year under review and the previous year are shown in the following table:

Country	Currency	Balance sheet date		Average rate	
		Dec. 31, 2018	Dec. 31, 2019	2018	2019
Australia	AUD	1.6220	1.5995	1.58002	1.61059
Brazil	BRL	4.4440	4.5157	4.30845	4.41354
Canada	CAD	1.5605	1.4598	1.53025	1.48574
China	CNY	7.8751	7.8205	7.80749	7.73388
China, Hong Kong	HKD	8.9675	8.7473	9.26022	8.77243
Czech Republic	CZK	25.7240	25.4080	25.64253	25.66975
Hungary	HUF	320.9800	330.5300	318.81669	325.22967
India	INR	79.7298	80.1870	80.73165	78.85014
Japan	JPY	125.8500	121.9400	130.41846	122.05637
Korea	KRW	1,277.9300	1,296.2800	1299.29616	1,304.89870
Malaysia	MYR	4.7317	4.5953	4.76431	4.63716
Mexico	MXN	22.4921	21.2202	22.71543	21.55728
New Zealand	NZD	1.7056	1.6653	1.70597	1.69927
Norway	NOK	9.9483	9.8638	9.60073	9.84967
Poland	PLN	4.3014	4.2568	4.26049	4.29753
Romania	RON	4.6639	4.7793	4.65345	4.74524
Russia	RUB	79.7153	69.9563	74.05934	72.45934
Singapore	SGD	1.5591	1.5111	1.59292	1.52721
Sweden	SEK	10.2548	10.4468	10.25703	10.58666
Switzerland	CHF	1.1269	1.0854	1.15498	1.11267
Taiwan	TWD	33.8434	32.4187	34.30734	33.33479
Thailand	THB	37.0520	33.4150	38.16428	34.76480
Turkey	TRY	6.0588	6.6843	5.69851	6.35735
United Arab Emirates	AED	4.1822	4.0715	4.30964	4.07950
United Kingdom	GBP	0.8945	0.8508	0.88475	0.87731
USA	USD	1.1450	1.1234	1.18153	1.11960
Vietnam	VND	25,731.3083	25,137.3604	26,352.42032	25,195.71701

Accounting and valuation principles

Orders received

An order is not recognized as an incoming order until a binding purchase order has been received. Framework agreements by themselves do not therefore result in an incoming order. Legally binding order releases of volumes are only recognized as an incoming order upon receipt. Letters of intent are also excluded from the reported orders received.

Order backlog

An order is recorded in the order backlog if a binding customer order has not yet been invoiced or not yet realized as revenue in the case of long-term contract production.

Revenue recognition

Sales revenues of KUKA Group are recognized upon the performance of services or transfer of the power of disposal to the customer in accordance with the valid Incoterms. Sales revenues are thus recorded when either the products or goods are delivered or the contractually agreed services have been provided, i. e. the performance obligations have been fulfilled. Furthermore, the material risks and potential rewards of ownership must have passed to the purchaser, the proceeds must be reliably determinable and the economic benefits resulting from the sale must be sufficiently probable. In order to determine a percentage of completion for period-based accounting, for example, the costs associated with the sale must be reliably determined. If a performance obligation is satisfied at a point in time, the invoice is generally issued after the performance obligation has been fulfilled, whereas invoicing is linked to milestones in the case of satisfaction of a performance obligation over time. Performance obligations with regard to returns, refunds, guarantees or similar obligations are not of material importance to KUKA Group.

Orders meeting the criteria of IFRS 15.35 are accounted for over time. Revenue is recognized on the basis of the percentage of completion of an order, which is determined for each project using the cost-to-cost method. The cost-to-cost method involves placing the costs already incurred for the project, based on an assessment of the progress already achieved, in relation to the anticipated total costs. If an order is accounted for over time, the profit from it is recognized on the basis of the calculated percentage of completion. If the advance payments received exceed the services already provided, the resulting negative balance will be disclosed under contract liabilities. A contract asset is recognized if the services rendered exceed the advance payments received. In principle, borrowing costs are taken into account for long-term orders in accordance with IAS 23, but they are no longer recognized due to cost-benefit considerations. For impending project losses, please refer to the “Provisions” section within this chapter.

Cost of sales

The cost of production of the goods sold as well as the acquisition cost of any merchandise sold are recognized under the cost of sales. In addition to the cost of attributable direct materials and labor, indirect costs, including the depreciation and amortization of production plants and intangible assets, write-downs of inventories and the borrowing costs are also reported in the cost of sales.

If provisions for product warranties have to be taken into account, the expense incurred is recorded as part of the cost of sales at the time of revenue recognition. If the currently estimated total costs exceed the sales revenues of an order, the resulting impending losses are taken into account in the reporting period in which they are first exceeded.

Business combinations

Business combinations are accounted for using the purchase method. The cost of acquisition is determined at the fair value of the assets given up and the liabilities incurred/assumed at the acquisition date. As the acquirer, KUKA recognizes an agreed contingent consideration at fair value at the acquisition date. Irrespective of the extent of non-controlling interests, the identifiable assets acquired and liabilities (including contingent liabilities) assumed in a business combination are recognized at fair value at the acquisition date. Uniform accounting policies are used here. Gains and losses arising are subsequently recognized in proportion to the interest held without limitation. As a result, there may also be a negative balance for the non-controlling interests. The non-controlling interests are involved in profit sharing during the reporting period.

Investments in associates and joint ventures

Investments in associates and joint ventures are initially recognized at cost. Any difference between the cash contribution and pro rata equity capital is recognized directly in equity. For subsequent measurement, which is carried out using the equity method, the application of IAS 28 is decisive. The earnings from associates or joint ventures are recognized in a separate item of the income statement.

Goodwill

At least once a year, generally in the fourth quarter of a financial year, the Group assets recognized as goodwill are tested for impairment. This involves the carrying amount of goodwill allocated to the respective cash generating units (CGUs) being compared to the recoverable amount. As soon as the carrying amount of a CGU exceeds the recoverable amount, an impairment loss must be recognized for the goodwill allocated to the CGU. The recoverable amount is defined as the higher of the CGU’s fair value less potential costs to sell and its value in use. KUKA Group normally uses a CGU’s value in use to determine its recoverable amount. The data for the detailed planning phase from the business plan for the next three years are used for this purpose, supplemented by the strategic planning for the following two years.

With respect to the segment-specific discount rates as well as the further parameters and their derivation, and also for the identification of the principal items of goodwill, please refer to the discussions under note 7.

Self-developed software and other development costs

If the technical feasibility and marketing of newly developed products is assured and it is also probable that the Group will derive economic benefit from them, the development costs for newly developed products or internally generated intangible assets (including software) are capitalized. In addition, the requirements of IAS 38.57 must be met cumulatively in order to be able to capitalize the costs attributable to the development process.

From the beginning of the economic use of the asset, it is depreciated on a straight-line basis over a period of generally three to five years. Additionally, development projects that have not yet been completed but have already been capitalized are tested for impairment once a year.

Research and development costs that are not eligible for recognition as an asset are recognized as expenses when they are incurred.

Other intangible assets

In KUKA Group, the purchased intangible assets essentially comprise software and patents. They are recognized at their acquisition cost and are amortized over their expected useful economic life of usually three to five years using the straight-line method.

Property, plant and equipment

Property, plant and equipment are recognized at acquisition or production cost in the balance sheet and normally depreciated using the straight-line method. The depreciation method selected in each case is continuously reviewed.

The following table shows the useful lives, unchanged from the previous year, on which scheduled depreciation is generally based:

	Years
Buildings	25 – 50
Property facilities	2 – 15
Technical plant and equipment	2 – 15
Other equipment	2 – 15
Factory and office equipment	2 – 15

If the recoverable amount of an asset exceeds the carrying amount shown in the balance sheet, an impairment loss is recognized in accordance with IAS 36. This is done within the scope of an impairment test carried out as soon as a triggering event occurs. Whether this is the case is subject to an ongoing review within KUKA Group. If there is a change in parameters relevant to the calculation, such as a significant increase in market yields, or if there are changes with adverse consequences in the technological, market-related, economic or even legal environment, this indicates a triggering event. The recoverable amount is determined for each asset concerned. This is the higher of the fair value less costs to sell and the value in use. If the reasons for a previous impairment no longer apply, the value is recovered.

Borrowing costs and qualifying assets

In accordance with IAS 23, financing costs for so-called qualifying assets must be accrued. The borrowing costs relating to these qualifying assets are capitalized if material. In KUKA Group, a qualifying asset is defined as an asset for which a period longer than twelve months is required to make it ready for its intended use or sale (please refer to IAS 23.5). Examples here within KUKA Group in particular are manufacturing plants, internally-generated intangible assets and also long-term construction contracts. Since the 2016 fiscal year, KUKA Group has no longer taken any borrowing costs into account for long-term contract manufacturing for the time being.

Government grants

If there is sufficient certainty in accordance with IAS 20.7 that the company fulfills the conditions for the grants and that they will actually be granted, government grants, including non-monetary grants, are recognized at fair value. In the balance sheet, government grants related to assets are disclosed as deferred income and amortized systematically in the income statement over the useful life of the asset. Grants related to income are recognized immediately in the income statement.

Leases

As of January 1, 2019, the previous leases standard IAS 17 was replaced by the new IFRS 16. The provisions for companies acting as the lessee, which is the predominant case in KUKA Group, changed fundamentally. For lessees, a distinction is no longer made between finance and operating leases, but rather if a lessee has a right of use for an asset, this must be accounted for. For this purpose, the lessee capitalizes a right-of-use asset consisting of the present value of the future lease payments in the balance sheet and a corresponding lease liability. Subsequently, the right-of-use asset is amortized systematically over the shorter of the lease term and the economic benefit. The lease liability is reduced by the principal component and an interest expense underlying the contract is also recognized. If the interest component is not available for the respective contract, the Group's incremental borrowing rate is used. A discount of 0.8% is applied to this interest rate for real estate. This is calculated on the basis of the lease term and the currency in which the contract is concluded, among other things. This accounting method must be applied to all leases that fall within the scope of IFRS 16.3 and have a lease term longer than 12 months. This accounting method must be applied to all leases that fall within the scope of IFRS 16.3, have a lease term longer than 12 months and an original price of more than €5,000.

For KUKA Group as a lessor, the introduction of IFRS 16 has not resulted in any material changes to the accounting method. If the contract is classified as a finance lease, it is accounted for as a sale or financing transaction. A receivable is valued at the amount of the net investment in the lease and the interest income from it is recognized in the income statement.

The classification of a contract as an operating lease with KUKA Group acting as the lessor means that the asset remains on KUKA Group's balance sheet. The income from it is recognized directly in the income statement over the term of the lease. The asset is amortized in accordance with the applicable standard, if necessary.

Financial instruments

Besides primary financial instruments (e. g. trade receivables or trade payables), KUKA Group also holds derivative financial instruments (e. g. transactions to hedge the risks of changes in fair value).

Derivative financial instruments constitute financial contracts whose value is derived from the price of an underlying asset (such as stocks, bonds, money market instruments or commodities) or a reference rate (such as currencies, indices or interest rates). Little or no initial investment is required and their settlement takes place at a future date. Examples of derivative financial instruments include options, forward contracts and interest rate swap transactions. KUKA Group uses derivative financial instruments to hedge currency risks. No hedge accounting has taken place in KUKA Group since 2009. In accordance with IFRS 9, KUKA Group uses the following relevant categories within the financial instruments (please also refer to note 29):

- Debt/equity instruments and derivatives measured at fair value through profit and loss (FVtPL)
- Debt/equity instruments and derivatives measured at fair value through other comprehensive income (FVOCI)
- Debt instruments measured at amortized cost (AC)

As a general rule, financial instruments are initially recognized when the asset is delivered to or by KUKA and they are therefore accounted for as of the settlement date (please also refer to note 29).

Derivative financial instruments

In KUKA Group, all derivative financial instruments are recognized at fair value as of the settlement date. The fair values are determined with the aid of standard financial mathematical techniques, using current market parameters such as exchange rates and counterparty credit ratings (mark-to-market method) or quoted prices. Middle rates are used for this calculation.

Derivative financial instruments are used to hedge currency fluctuations.

If the derivative financial instruments have a positive fair value, they are recognized under other assets. A negative fair value, on the other hand, results in disclosure under other liabilities.

Investments in non-consolidated companies and financial investments

In KUKA Group, investments in continuing business units that are not material to the net assets, financial position and performance of the Group are classified as available-for-sale financial assets and carried at cost. As the shares are not traded on an active market, no current market values are available for them.

Receivables and other assets

KUKA Group's receivables and other assets are recognized at amortized cost using the effective interest method. In addition, appropriate deductions are made for all identifiable individual risks. Valuation allowances are shown in separate accounts and the carrying amounts of the assets or receivables to be written down are adjusted. Actual defaults result in a write-off of the receivables in question. For determining the extent of the provision for credit losses, a three-stage model is used, according to which, as of the time of addition, twelve-month expected credit losses and, in the event of a significant deterioration in credit risk, the expected total losses are to be recognized. Furthermore, with the introduction of IFRS 9, a so-called expected loss model was introduced so that expected risks can also be covered. This is applied to trade receivables, lease receivables and contract assets as defined by IFRS 15. The amount of the value adjustment required is calculated on the basis of probable default rates.

Cash and cash equivalents

Cash and cash equivalents reported in the balance sheet comprise liquid funds, namely cash on hand, checks and cash balances with financial institutions, and are measured at cost. Their original remaining term is no longer than three months. Securities that have an original remaining term of more than three months are reported under other assets.

Liabilities

As a rule, liabilities are carried at amortized cost. However, liabilities from finance leases are an exception, as they are recognized at the present value of future lease payments. Liabilities with a maturity of more than one year are discounted at the relevant interest rates as at the balance sheet date if there is a material effect.

Financial liabilities are initially recognized at fair value less any transaction costs. They are subsequently measured at amortized cost. Any difference between the amount paid out (less transaction costs) and the settlement amount is recognized in the interest result for the term of the loan using the effective interest method. Any fees for setting up credit lines, for example, are capitalized as credit transaction costs and recognized as interest expense over the term of the respective loan commitment.

The trade payables also include payments due on outstanding supplier invoices. KUKA Group has launched a supplier finance program to improve the management of trade payables. A separate agreement is made for each supplier based on a framework agreement with banks in which the supplier can discount authorized receivables at the bank at any time (that means those that have been approved by KUKA Group). The liability is paid to the bank on the due date by KUKA Group, irrespective of the supplier's discounting date. This gives both suppliers and KUKA Group added flexibility and security.

Inventories

In accordance with IAS 2, KUKA Group capitalizes existing inventories at the lower of cost or net realizable value. The average cost method is used as the measurement standard for acquisition and production costs. The production costs include not only the direct unit costs but also an appropriate share of material and production overheads. Where necessary, discounts to lower net realizable values were also applied. In addition to valuation allowing disposal at no net loss, these discounts also take all other inventory risks into account. An impairment loss is reversed if the reasons for a write-down of inventories in the past no longer exist.

Current and deferred taxes

Tax receivables and liabilities are assessed using the expected amount of the reimbursement from or payment to the tax authorities. The local tax laws are taken into consideration for the calculation.

Deferred tax assets and liabilities are recorded according to IAS 12 for all temporary differences between the carrying amounts of assets and liabilities on the Group balance sheet and their recognized value for tax purposes (liability method) as well as for tax loss carryforwards. Deferred tax assets for accounting and valuation differences as well as for tax loss carryforwards are only recognized to the extent that there is a sufficiently probable expectation that the corresponding benefit will be realized in the future. Deferred tax assets and liabilities are not discounted. Deferred tax assets are netted against deferred tax liabilities if the tax creditor is the same.

Pension provisions and similar obligations

The measurement of pension provisions and similar obligations is performed in accordance with IAS 19 and includes pension liabilities of KUKA Group from performance-based pension systems. Company obligations from defined benefit plans are determined separately for each defined benefit plan according to actuarial principles. The first step involves the retirement benefits being estimated that employees have acquired in return for their service in the current period and prior periods. The next step involves these retirement benefits being discounted using the project unit credit method. Not only known pensions and vested benefits are taken into consideration as of the balance sheet date. This method also takes expected future increases in salaries and pensions into account. The calculation is based on actuarial reports that must be prepared annually based on biometric data. If actuarial gains or losses arise in a period, they are recognized in other comprehensive income. The company determines the net interest expense (net interest income) by multiplying the net liability (net asset value) at the beginning of the period with the underlying interest rate of the discount of the gross defined benefit pension obligation at the beginning of the period. If a past service cost is incurred due to changes to the plan, this is recognized directly in the period in which the change occurs. The standard return on plan assets is recognized in the amount of the discount rate applied to pension obligations. Administrative expenses that are incurred for plan assets are recognized as part of the revaluation component in other comprehensive income, while other administrative costs are allocated to operating profit at the time the costs occur. Reinsurance policies with insurance companies are in place for obligation surpluses from pre-retirement schemes according to the block model, which are taken into account with the same interest rate as for the corresponding obligation. The amount added for obligations from pre-retirement schemes is proportional to the amounts in the applicable collective bargaining agreements. For the defined contribution plans, KUKA pays contributions to a public or private pension insurance carrier. Upon payment of the contributions, KUKA has no further obligations.

Other provisions

Other provisions are recognized if there is an equivalent obligation to third parties arising from a past event, the amount of the provision can be reliably estimated and the outflow of resources is deemed to be more likely than not. Since KUKA Group only recognizes provisions for legal and constructive obligations to third parties, no provisions are made for expenses due to the absence of external obligations.

A provision for restructuring measures is only recognized if the previously general requirements and those of IAS 37.72 are cumulatively met. According to IAS 37.72, a detailed, formal restructuring plan must additionally be drawn up and communicated to the persons affected, and it is highly probable that the company can no longer withdraw from the resulting obligation.

As neither the time of occurrence nor the amount of the obligation is subject to uncertainty, liabilities in the personnel area such as vacation pay, and pre-retirement schemes are recognized under other liabilities.

If a provision is likely to occur within an ordinary business cycle, it is shown as current in the balance sheet. This period may also extend for longer than a year in individual cases. Non-current provisions with a term of more than one year are discounted to the balance sheet date on the basis of appropriate interest rates provided that the interest effect is classified as material.

Assets and liabilities held for sale

Non-current assets (or a disposal group) are classified as held for sale according to IFRS 5.6 – 9 if the associated carrying amount is mainly realized by a sales transaction or a distribution to shareholders and not by continued use. For this to be the case, the asset (or disposal group) in its current state under conditions that are established practice and common for the sale of such assets (or disposal groups) must be immediately available for sale and such sale must be highly probable. A sale is regarded as highly probable if the responsible management level has adopted a plan for the sale of the asset (or disposal group) and has actively started searching for a buyer and executing the plan. In addition, the asset (or disposal group) must actually be offered for sale at a price that adequately reflects its current fair value. The disposal must be expected to qualify for recognition as a completed sale within one year from the date of classification. Non-current assets and disposal groups held for sale are measured at the lower of carrying amount and fair value, less disposal costs. This does not apply to items that are presented within the disposal group but do not fall within the scope of IFRS 5.

Share-based compensation

The phantom share program expired in the past financial year. Between 2017 and 2018, the members of the executive management team were instead entitled to participate in long-term incentive plans (hereinafter “LTIPs”) with annual allocation volumes. These are variable remuneration components with a long-term target-based incentive effect, which always cover a period of three financial years. The current plans thus cover the periods 2017 to 2019 and 2018 to 2020. In addition to performance, the targets are also based on strategy factors. The underlying measurement parameters correspond to the LTIP of KUKA Aktiengesellschaft’s Executive Board. The LTIP is not linked to the share price. The LTIP entitlements are paid out at the end of the contractually agreed period. Early payment is possible only under certain conditions when leaving the Group. Since the 2019 financial year, it has been possible to participate in the newly designed KUKA Added Value Incentive Plan (hereinafter “KAVI”). In contrast to the LTIP, the KAVI is again based on long-term development of the earnings per share and the share price performance of KUKA AG and Midea Group Co. Ltd. The 2019 – 2021 KAVI plan has a term of three years.

As the phantom share program expired at the end of the 2018 financial year, there are no future claims arising from it which would have to be provided for as of December 31, 2019 (2018: €1.7 million). For the LTIP and KAVI, an amount of €0.1 million (2018: €0.2 million) has been recognized as a provision for the executive management team.

See the compensation report for further details about the structure of the KAVI.

Assumptions and estimates

KUKA Group’s consolidated financial statements are prepared in compliance with the IFRS standards mandatory in the EU. In some cases, the structure of the rules and regulations means that estimates and assumptions have to be made which may subsequently change and also deviate from the actual values. The assumptions and estimates could also have been made differently by the company management in the same reporting period for equally justifiable reasons. In the application of accounting policies, the company has made the following discretionary decisions, which in some cases have a significant effect on the amounts in the annual financial statements. These do not include those decisions that represent estimates. Assumptions and estimates were used within KUKA Group for the following matters:

- Definition of the scope of consolidation
- Calculation of fair value
- Development costs
- Goodwill impairments
- Impairments of brand names with an indefinite useful life
- Deferred tax assets on loss carryforwards
- Trade receivables
- Contract assets and contract liabilities
- Pensions and other post-employment benefits
- Provisions

Definition of the scope of consolidation

If KUKA Group has existing rights to direct the significant operations of a company, the latter is referred to as a subsidiary. Significant operations are those which have a material impact on the profitability of a company. Control is deemed to exist if KUKA Group is exposed to variable returns from its relationship with a company and can exert influence on the returns through its power to direct the significant operations. As a rule, the possibility of exercising control is based on KUKA Group having direct or indirect majority voting rights. Often, additional parameters are necessary for the assumption of control over a subsidiary. These include additional contractual agreements, which must be included in the assessment of the overall construct. A final assessment of the type of consolidation can only be made after all the relevant factors have been evaluated. Joint ventures are based on joint agreements, which exist if KUKA Group shares the management of activities conducted with a third party on the basis of a contractual agreement. Joint management is only present if decisions on significant activities require unanimous agreement from the parties involved. In the case of joint ventures the parties exercising the joint management hold rights to the net assets of the agreement. They are accounted for using the equity method, which is also applied to associated companies. Here, KUKA Group generally exercises a significant influence based on a shareholding of between 20% and 50%. Ultimately, the assessment of all parameters of the respective relationship is decisive for determining the type of consolidation in this case too.

Calculation of fair value (fair value measurement)

According to IFRS 13, fair value is a market-based measurement and not company-specific. The standard governs how to determine fair market value and stipulates disclosures related to the measurement of the fair market value. No indication is given of the cases in which the fair value is to be used as a measure. Fair value is defined as the price that would be paid by independent market participants in an arm's length transaction at the evaluation date if an asset were sold or a liability transferred. In accordance with IFRS 13, assets and liabilities measured at market values are to be attributed to one of the three levels of the fair value hierarchy. The individual levels of the fair value hierarchy are defined as follows:

Level 1
Quoted prices in active markets for identical assets or liabilities

Level 2
Inputs other than quoted prices that are observable either directly or indirectly

Level 3
Inputs for assets and liabilities that are not based on observable market data

Development costs

The requirements for capitalization have already been described in the accounting and valuation methods. However, the recoverability of the capitalized amounts must also be determined on the basis of estimates. For this purpose, management must make assumptions concerning the expected future cash flows from assets, the applicable discount rates and the timing of the inflow of expected future cash flows. If projects are still in the development stage, assumptions must additionally be made regarding costs yet to be incurred and the time of completion.

Goodwill

Goodwill existing within KUKA Group must be tested for impairment at least once a year. For each cash generating unit (CGU) to which goodwill is allocated, an estimate of the respective value in use must be made. To determine the value in use, management must estimate the future cash flows of the respective CGUs. Additionally, an appropriate discount rate must be selected to determine the present value of the cash flows. The selected discount rate is influenced by volatility in capital markets and interest rate trends. Exchange rate fluctuations and expected economic developments also affect the expected cash flows. Furthermore, continuous review is necessary to determine whether there is any indication of impairment. In addition to changes in individual parameters that affect computation such as a significant increase in market yields, a particular focus is placed on changes with an adverse effect on the company in the technological, market, economic or legal environment in which it operates. By means of these indicators KUKA regularly observes whether a triggering event is present that would necessitate an impairment test in accordance with IAS 36 for goodwill, but also for other non-current assets. For details about the carrying amounts of the assets recognized as goodwill and the performance of the impairment tests please refer to the discussion under note 7.

Brand names with an indefinite useful life

KUKA Group assesses the intrinsic value of brand names with an indefinite useful life at least once a year. This involves estimating the future cash flows based on a potentially fictitious licensing income and selecting an appropriate discount rate for calculating the present value of these cash flows for each brand name. In this case too, the selected discount rate, for example, is influenced by volatility in capital markets and interest rate trends. The expected cash flows are also influenced by exchange rate fluctuations and the expected economic developments.

Deferred tax assets on loss carryforwards

Deferred tax assets for loss carryforwards are recognized to the extent that it is probable that taxable income will be available such that the loss carryforwards can actually be used. The determination of the amount of deferred tax assets requires an estimate on the part of management regarding the expected timing and amount of anticipated future taxable earnings as well as future tax planning strategies. In the event of a series of losses in the recent past, deferred tax assets are only recognized to the extent that there is convincing evidence that sufficient taxable earnings will be available in excess of taxable temporary differences. In assessing the probability that taxable earnings will be available, identifiable causes are also ascertained which in all probability will not recur. For details please refer to the explanations under note 5.

Trade receivables

Impairment of doubtful receivables involves making significant estimates and assessments regarding individual receivables based on the creditworthiness of the respective customer, the current economic trends and the analysis of historical bad debts on a portfolio basis. As far as the company derives the impairment on a portfolio basis using historical default rates, a decrease in the volume of receivables reduces such provisions accordingly and vice versa.

Contractual assets and liabilities

In the Systems, Swisslog and Swisslog Healthcare segments in particular, there is a significant share of business from long-term projects which are accounted for over time in accordance with the provisions of IFRS 15.35. Revenue from the project is recognized depending on the percentage of completion. Particular emphasis is placed on the careful estimate of the progress of the work performed. Depending on the method used to determine the percentage of completion, the most important estimates include the total order costs, the costs yet to be incurred until completion, the total project revenues and risks as well as other assessments. The management team responsible for the respective project continuously monitors all estimates on a monthly basis and adjusts these as needed. Depending on the project progress and the consideration received, there is a contractual asset or a contractual liability for each project that is disclosed in the balance sheet.

Pensions and other post-employment benefits

Expenditures under defined-benefit plans and other post-employment benefits are determined on the basis of actuarial calculations. The actuarial calculations are prepared on the basis of assumptions with respect to discount rates, future increases in wages and salaries, mortality rates and future pension increases. In line with the long-term orientation of these plans, such estimates are subject to significant uncertainties. Please see note 23 for further details.

Provisions

To a considerable degree, the designation and measurement of provisions for impending losses from contracts, of provisions for warranty obligations and of litigation provisions are subject to estimates being made.

KUKA Group recognizes a provision for impending losses when the current estimated total costs arising from the respective contract exceed the expected total revenue. These estimates may change due to new knowledge as the project progresses because long-term construction contracts in particular are awarded based on invitations to tender. Deficit orders are identified based on continuous project costing. This makes it necessary for the performance requirements and warranty costs to be assessed.

KUKA Group is also confronted with various legal disputes, the proceedings of which may result in penal or civil sanctions or fines. A provision is always recognized when it is likely an obligation will result that will lead to future cash outflows and the amount of which can be reliably assessed. The underlying issues are often complex and associated with great uncertainties. Judgment whether a present obligation arising from a past event is to be recognized on the balance sheet date, whether future cash outflows are probable and the obligation can be reliably assessed is therefore largely at the discretion of management. The company, with the assistance of external legal professionals, regularly assesses the respective stage of the proceeding. New findings can change the assessment and it may be necessary to adjust the provision accordingly. For further details please refer to note 24.

Changes in accounting and valuation methods

KUKA Group took the following revised standards and interpretations into account in the consolidated financial statements for the first time in the 2019 fiscal year:

- IFRS 16 – Leases
- IFRIC 23 – Uncertainty over Income Tax Treatments
- Amendments to IFRS 9 – Prepayment Features with Negative Compensation
- Amendments to IAS 28 – Long-term Interests in Associates and Joint Ventures
- Annual Improvements 2015 – 2017 – Amendments to IFRS 3, 11 and IAS 12, 23
- Amendments to IAS 19 – Plan Amendment, Curtailment or Settlement

IFRS 16 – Leases

A uniform accounting model was introduced at the beginning of the year under review with IFRS 16, by which leases must from now on be reported in the balance sheet of the lessee. The lessee recognizes a right-of-use asset that represents its right to use the underlying asset and a corresponding liability from the lease that represents its obligation to make lease payments. Short-term leases (term of less than twelve months) and leases for assets whose original price is less than €5,000 are excluded from this rule and may continue to be recorded off-balance sheet. Accounting for the lessor remains virtually unchanged – this means that lessors still classify leases as finance or operating leases.

IFRS 16 replaces the existing guidelines on leases, including IAS 17 Leases, IFRIC 4 Determining Whether an Arrangement Contains a Lease, SIC–15 Operating Leases – Incentives and SIC–27 Evaluating the Substance of Transactions Involving the Legal Form of a Lease.

For KUKA Group, the first-time application of IFRS 16 means a change in presentation within the opening balance sheet as at January 1, 2019. KUKA Group applied the modified retrospective transition method. Overall, the balance sheet total increased from December 31, 2018 to January 1, 2019 by €134.0 million to €3,352.5 million. (December 31, 2018: €3,218.5 million). A new balance sheet item was created on the assets side – the right-of-use assets increased by €134.0 million at the time of initial application. The corresponding lease liability was broken down by maturities and also increased by €134.0 million in total, of which €101.6 million related to non-current and €32.4 million to current lease liabilities.

IFRIC 23 – Uncertainty over Income Tax Treatments

The actual income taxes are calculated based on the respective national taxable income and regulations for the year. In addition, the actual taxes reported in the financial year also include adjustment amounts for any tax payments or refunds for years not yet finally assessed, but excluding interest payments or interest refunds and penalties for back taxes. Tax liabilities are recognized for any amounts reported in the tax returns that will probably not be realized (uncertain tax positions). The amount is determined from the best possible estimate of the expected tax payment (expected value or most probable value of the tax uncertainty). Tax receivables from uncertain tax positions are recognized in the balance sheet if it is probable that they can be realized. Only if a tax loss carryforward or an unused tax credit exists will no tax liability or tax receivable be recognized for these uncertain tax positions, but instead the deferred tax asset will be adjusted for the tax loss carryforwards and tax credits not yet utilized.

Amendments to IFRS 9 – Prepayment Features with Negative Compensation

This amendment enables entities to measure certain financial assets with an early repayment option and negative compensation at amortized cost. The assets concerned, including loans and debt instruments, would otherwise be measured at fair value through profit or loss (FVtPL).

IAS 28 – Long-term Interests in Associates and Joint Ventures

The amendments include clarification that non-current investments in associates or joint ventures that are not accounted for using the equity method are to be measured by applying IFRS 9. This also includes the impairment provisions pursuant to IFRS 9. Negative compensation occurs when the contractual provisions allow the borrower to repay the instrument before its contractual maturity but the amount to be repaid early is less than the outstanding principal and interest payments. However, the negative compensation must represent "reasonable compensation for early termination of the contract" in order to qualify for measurement at amortized cost.

Annual Improvements 2015 – 2017 – Amendments to IFRS 3, 11 and IAS 12, 23

If, through the acquisition of additional shares, an entity gains control within the meaning of IFRS 10 over a business that was previously a joint operation, this is defined as a business combination achieved in stages. The interest previously held in the joint venture is therefore to be remeasured at the acquisition date pursuant to IFRS 3. If, through the acquisition of additional shares, an entity gains joint control over a business that was previously a joint operation, the previously held interest is not remeasured according to IFRS 11. The amendment to IAS 12 clarifies that the income tax consequences of dividend payments on financial instruments classified as equity are to be treated in accordance with the treatment of the transaction(s) giving rise to the tax effect. Finally, IAS 23 clarifies that borrowings not yet repaid that were originally incurred specifically to obtain a qualifying asset are to be included, as of the date when this qualifying asset is substantially ready for its intended use or sale, in determining the general borrowing cost rate for other qualifying assets for which no specific borrowings were made.

Amendments to IAS 19 – Plan Amendment, Curtailment or Settlement

The amendments require entities to use updated assumptions to determine current service cost and net interest for the remaining period following a plan amendment, curtailment or settlement. In addition, any reduction in a surplus must be recognized in profit or loss as part of past service cost, even if that surplus was not previously recognized because of the effect of the asset ceiling.

With the exception of IFRS 16 – Leases, the amended standards described above had no material impact on the Group's consolidated financial statements.

The following standards, standard amendments and interpretations were approved by the balance sheet date and have in part already been adopted into EU law, without yet having an effect on the financial statements as at December 31, 2019, however:

Changes in accounting and valuation methods

Standard/Interpretation	Effective date	Planned application by KUKA AG
Amendments to References to the Conceptual Framework in IFRS Standards	Jan. 1, 2020	Jan. 1, 2020
Amendments to IAS 1 and IAS 8 – Definition of Materiality	Jan. 1, 2020	Jan. 1, 2020
Amendments to IFRS 3 – Business Combinations	Jan. 1, 2020	Fiscal year 2020[1]
Amendments to IFRS 9, IAS 39 and IFRS 7 – Interest Rate Benchmark Reform	Jan. 1, 2020	Fiscal year 2020[1]
IFRS 17 – Insurance Contracts	Jan. 1, 2021	Jan. 1, 2021

[1] Pending adoption (endorsement) by the European Union

Effects of new accounting standards to be applied as of the 2020 fiscal year

KUKA does not plan to apply at an early stage the new or amended standards and interpretations whose application is not mandatory until later fiscal years. The effects of these new standards are being continuously evaluated. Standards whose application is mandatory as of January 1, 2020 have no material impact on the consolidated financial statements.

Explanation of items in the financial statements

Notes to the Group income statement

1. Sales revenues

As soon as a contractual obligation is fulfilled by transferring promised goods to a customer or performing a service, sales revenues are recognized within KUKA Group. These revenues are generated through the sale of products (e.g. industrial robots), construction contracts and mainly downstream services. In the case of products, the performance obligation is fulfilled at a specific point in time, whereas the performance obligation in the case of construction contracts is fulfilled over a period of time. For services, the performance obligation can be fulfilled either over a period of time or at a point in time.

Altogether, the Group generated sales revenues of €3,192.6 million (2018: €3,242.1 million): of this total, €1,565.7 million (2018: €1,561.9 million) was attributable to the fulfillment of performance obligations at a point in time and €1,626.9 million (2018: €1,680.2 million) to obligation fulfillment over a period of time. As in the previous year, the highest revenues of €1,646.2 million (2018: €1,578.0 million) were generated in EMEA, followed by the Americas (2019: €958.8 million; 2018: €1,024.9 million). A slight year-on-year decline was observed in the Americas, whereas sales revenues in EMEA increased. The breakdown of revenues by region is based on the regional allocation of the subsidiaries.

	EMEA		Americas		Asia/Australia		Group	
in € millions	2018	2019	2018	2019	2018	2019	2018	2019
Services provided over a period of time	593.4	674.6	799.6	750.2	287.2	202.1	1,680.2	1,626.9
Services provided at a specific point in time	984.6	971.6	225.3	208.6	352.0	385.5	1,561.9	1,565.7
Total	**1,578.0**	**1,646.2**	**1,024.9**	**958.8**	**639.2**	**587.6**	**3,242.1**	**3,192.6**

The segment with the highest revenues is Robotics, which is primarily active in the product business and thus in the fulfillment of performance obligations at specific points in time. The Systems, Swisslog and Swisslog Healthcare business segments are mainly engaged in project business, which is why revenues are mostly recognized for period-based obligation fulfillment. In 2018, the China segment still showed a balanced revenue distribution between the fulfillment of performance obligations at a point in time and over time, whereas in 2019 a larger share of revenues was attributable to obligation fulfillment at a point in time. The following table shows the breakdown of the segments by revenue recognition at a point in time and over time:

	Systems		Robotics		Swisslog		Swisslog Healthcare		China		Other/ consolidations		Group	
in € millions	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019
Services provided over a period of time	811.9	731.6	231.9	181.0	486.3	555.9	192.5	201.2	232.2	129.6	–274.6	–172.4	1,680.2	1,626.9
Services provided at a specific point in time	113.5	193.8	1,015.4	978.2	120.8	44.1	20.4	21.1	295.7	328.6	–3.9	–0.1	1,561.9	1,565.7
Total	**925.4**	**925.4**	**1,247.3**	**1,159.2**	**607.1**	**600.0**	**212.9**	**222.3**	**527.9**	**458.2**	**–278.5**	**–172.5**	**3,242.1**	**3,192.6**

The anticipated sales revenues from the existing order backlog of €1,967.4 million (2018: €2,055.7 million) are expected to be generated in the following timeframe:

in € millions	2018	2019
Anticipated sales revenues from the existing order backlog	2,055.7	1,967.4
(of which, not later than one year)	(1,532.8)	(1,318.2)
(of which, later than one year and not later than five years)	(516.4)	(628.2)
(of which, later than five years)	(6.5)	(21.0)

2. Cost of sales, selling expenses, research & development expenses and general and administrative expenses

The breakdown of the cost of sales, selling expenses, research & development expenses and general and administrative expenses is shown below:

	Cost of sales		Selling expenses		Research and development expenses		General and administrative expenses		Total	
in € millions	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019
Cost of materials	1,720.2	1,626.1	4.7	8.5	11.9	31.4	7.8	7.6	1,744.6	1,673.6
Personnel expenses	642.6	649.0	167.0	164.7	100.9	107.9	149.2	147.2	1,059.7	1,068.8
Amortization	31.9	51.9	11.8	17.9	17.9	21.8	25.1	36.9	86.7	128.5
Other expenses and income	121.5	188.6	136.4	100.5	21.2	–0.6	64.6	–1.3	343.7	287.2
Total	**2,516.2**	**2,515.6**	**319.9**	**291.6**	**151.9**	**160.5**	**246.7**	**190.4**	**3,234.7**	**3,158.1**

The cost of sales was virtually unchanged from the previous year. The cost of materials within the cost of sales decreased, which was attributable to lower material usage. Depreciation and amortization across all functional areas increased due to the recognition of depreciation in connection with the introduction of the IFRS 16 leases standard. Other expenses and income within the cost of sales also increased, which is partly attributable to the recognition of restructuring expenses in the Robotics division. However, this also has the effect of increasing expenses in all other functional areas. In the previous year, this item also included the one-off income from early termination of the pay-on-production contract at KTPO. Within the cost of sales, foreign currency gains and losses from operational foreign currency transactions totaling €3.5 million (2018: €6.5 million) are also recognized under other expenses and income. Selling expenses fell by €28.3 million, reflecting the success of the efficiency program. As in the previous year, research & development expenses include amortization on borrowing costs capitalized in prior years (2019: €0.2 million; 2018: €0.1 million). The personnel costs within the research & development expenses are due to the focus on these activities. The necessary capacities have been created, with the result that an annual average of 1,259 people are employed in this functional area (2018: 1,124 employees). General and administrative expenses declined substantially. In the previous year, this functional area was impacted by personnel changes and related expenses.

Overall, the total of all functional costs fell by a further 2.4% (2018: 4.1% decline) compared with the previous year.

Personnel costs are directly allocated to the functional areas. The following figures result:

in € millions	2018	2019
Wages and salaries	874.7	883.6
Social security payments and contributions for retirement benefits and provident funds	185.0	185.2
(of which, for retirement benefits)	(23.3)	(26.7)
Personnel costs	**1,059.7**	**1,068.8**

The table below shows the annual average number of employees in KUKA Group at the balance sheet date:

Employees by functional areas	Annual average		Balance sheet date			
	2018	2019	Total 2018	Total 2019	of which, Germany	of which, abroad
Manufacturing	9,549	9,469	9,436	9,338	2,876	6,462
Sales	1,717	1,646	1,712	1,614	532	1,082
Administration	1,396	1,449	1,461	1,457	562	895
Research and development	1,124	1,259	1,251	1,264	630	634
	13,786	**13,823**	**13,860**	**13,673**	**4,600**	**9,073**
Apprentices	265	265	295	287	230	57
Student trainees	97	63	80	54	33	21
Total	**14,148**	**14,151**	**14,235**	**14,014**	**4,863**	**9,151**

3. Other operating income and expenses

The other operating income and expenses comprise items that cannot be allocated to any of the functional areas (cost of sales, selling expenses, research & development, general and administrative expenses) or otherwise reported separately. Other operating income fell from €45.8 million in 2018 to €30.7 million in 2019 and mainly includes income from the change in the consolidation method of the Chinese subsidiary which is now accounted for at equity. In the previous year, income from the sale of the companies KBee AG, Munich, and connyun GmbH, Augsburg, also had a positive effect. Furthermore, other operating income includes grants, special discounts, income from settlement agreements and the reversal of provisions no longer required.

Other operating expenses also decreased in the year under review by €2.8 million from €16.6 million in 2018 to €13.8 million in 2019. This item mainly includes other taxes in the amount of €8.2 million (2018: €8.4 million).

4. Financial result

After netting expenses and income in the financial result, a surplus of income amounting to €6.6 million remains for fiscal 2019 (2018: €0.6 million). This represents a year-on-year increase of €6.0 million (2018: €9.8 million).

in € millions	2018	2019
Depreciation of financial assets	**0.1**	**2.1**
Interest income from finance lease	1.8	11.4
Currency effects in the area of financing	3.0	1.0
Remaining interest and similar income	9.3	16.2
Other interest and similar income	**14.1**	**28.6**
Interest component for allocations to pension provisions	1.7	2.0
Guarantee commissions	1.8	1.7
Interest expense for promissory note loans	5.2	8.7
Financing costs reclassified to operating results and capitalized	−0.4	−0.7
IFRS 16 interest expense	–	5.6
Remaining interest and similar expenses	5.1	2.6
Other interest and similar expenses	**13.4**	**19.9**
Financial result	**0.6**	**6.6**

In the year under review, the depreciation of financial assets increased to €2.1 million (2018: €0.1 million) due to a value adjustment on a loan.

Interest income amounted to €28.6 million in 2019 after €14.1 million in 2018 – an increase of €14.5 million. This includes interest income on bank balances in connection with a Chinese joint venture established in the previous year. Moreover, the increase is also attributable to interest income from finance leases (2019: €11.4 million; 2018: €1.8 million), including that of KTPO. In the previous year, the decline was due to the suspended finance lease. Manufacturing operations under the terms of a pay-on-production contract at KUKA Toledo Production Operations LLC, Toledo/USA were resumed in the second quarter of 2019. The net balance of foreign exchange gains and losses in the 2019 fiscal year led to income of €1.0 million (2018: €3.0 million).

Not only the interest income but also the interest expenses showed an increase. They amounted to €19.9 million in 2019 after €13.4 million in the previous year. This increase is mainly due to the recognition of interest expenses for leases which arose through the change in accounting due to the introduction of IFRS 16 (2019: €5.6 million; 2018: €0.0 million). In addition, €8.7 million (2018: €5.2 million) was attributable to promissory note loans. Expenditure for guarantee commissions decreased from €1.8 million in 2018 to €1.7 million in 2019. Please refer to note 26 for more detailed information about the promissory note loans and guarantees.

5. Taxes on income/deferred taxes

Tax expense

Income tax expense breaks down by origin as follows:

in € millions	2018	2019
Current taxes	14.7	33.9
(of which, relating to other periods)	(–15.0)	(5.1)
Deferred taxes	3.6	2.6
(of which, from temporary differences)	(25.8)	(1.9)
(of which, from loss carryforwards)	(–22.2)	(0.7)
Tax expense	**18.3**	**36.6**

Of the current expenses for tax on earnings, €1.4 million is attributable to domestic expenditure (2018: €5.0 million) and €32.5 million to foreign expenditure (2018: €9.7 million).

The net deferred tax expenses result from domestic deferred tax expenses of €7.0 million (2018: income –€20.9 million) and foreign deferred tax income of –€4.4 million (2018: expense €24.5 million).

The expected tax expense based on earnings before taxes and the applicable tax rate for the KUKA companies in Germany remained unchanged at 32.0% and leads to the following actual tax expense:

in € millions	2018	2019
Earnings before tax expense	**34.9**	**54.4**
Expected tax expense	**11.2**	**17.4**
Tax rate-related differences	–3.4	–11.5
Tax reductions due to tax-exempt income	–13.3	–13.4
Tax increases due to non-deductible expenses	10.1	8.7
Tax expenses (+)/tax income (–) for prior years	–4.8	–4.3
Change in allowance on deferred taxes	15.6	39.9
First-time recognition of previously unrecognized deferred tax assets on tax loss carryforward	–1.6	–0.4
Change in permanent differences	0.1	–3.8
Tax impact of investments accounted for by the equity method	0.0	0.9
Effects resulting from tax rate changes	0.0	1.6
Tax effect due to non-creditable withholding taxes	4.5	1.8
Other differences	–0.1	–0.3
Taxes on income (actual tax expense)	**18.3**	**36.6**

The applicable tax rate in Germany still comprises corporate income tax of 15.0% as well as a solidarity surcharge of 5.5% and trade tax of 16.2% based on a uniform assessment rate, as was the case in the previous year.

In principle, deferred taxes were recognized on the basis of the applicable tax rate for each company in question.

There are no tax credits for which deferred taxes would need to be accounted.

Current tax expense relating to other accounting periods totaling €5.1 million (2018: income –€15.0 million) was incurred in German and foreign operations.

Deferred taxes

The value of deferred tax assets and liabilities due to temporary differences and tax loss carryforwards in the Group is associated with the following items:

	Deferred tax assets		Deferred tax liabilities	
in € millions	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019
Non-current assets	47.3	56.6	115.8	132.3
Current assets	83.1	54.5	64.5	52.3
Provisions	67.8	81.9	9.6	10.5
Liabilities	45.4	67.8	30.9	42.3
Subtotal	**243.6**	**260.8**	**220.8**	**237.4**
Balancing item	–178.4	–195.6	–178.4	–195.6
Valuation allowance	–17.3	–20.4	–	–
Subtotal	**47.9**	**44.8**	**42.4**	**41.8**
Deferred taxes on temporary differences	**47.9**	**44.8**	**42.4**	**41.8**
Deferred taxes on tax loss carryforwards	42.6	41.9	–	–
Total	**90.5**	**86.7**	**42.4**	**41.8**
(of which, from items recognized in equity)	(3.3)	(4.8)	(–)	(0.2)

Valuation allowances to the carrying amount of deferred tax assets are recognized if the realization of the expected benefit of the deferred taxes in the planning period is not sufficiently probable. The estimates made are subject to change over time, which may result in the reversal of the valuation allowance in subsequent periods.

The recognized values on the balance sheet are written off in the event that the tax benefits that they represent were no longer expected to be realized.

In the loss carryforwards of €594.0 million (2018: €418.3 million), loss carryforwards amounting to €453.7 million (2018: €285.1 million) are not considered in the accounting of deferred taxes, which can essentially be utilized indefinitely. An amount of €75.5 million from unrecognized loss carryforwards (2018: €31.1 million) will expire by 2025 if it is not utilized.

The loss carryforwards for which deferred taxes were capitalized relate to the total loss carryforwards as follows:

in € millions	Loss carryforwards for which deferred taxes were capitalized		Total existing loss carryforwards	
	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019
Swisslog (Deutschland) GmbH, Dortmund	–	–	35.3	41.8
KUKA Industries GmbH & Co. KG, Obernburg	–	–	65.7	74.9
KUKA Aktiengesellschaft, Augsburg	127.2	111.6	161.8	245.5
Other	6.1	28.6	155.5	231.8
Total	**133.3**	**140.2**	**418.3**	**594.0**

Deferred tax income in the amount of €0.4 million (2018: €1.6 million) results from the recognition of deferred tax receivables on loss carryforwards from earlier periods which until now had not been included in or written down from the tax accrual/deferral. Deferred tax assets previously recognized but not recognized in the current year in the total amount of €39.9 million (2018: €15.6 million) were not reported. Where loss carryforwards have not been written off, it is generally expected in the five-year planning period that this tax-reducing potential will be utilized via taxable income, which is likely based on the expectations of Group companies. To the extent that companies have generated tax losses in the current or past fiscal year, further considerations are made for the impairment analysis. Identifiable one-off effects result, for example, from restructuring measures or the efficiency program in Germany and will in all probability not recur in the future. At present, a significant improvement in earnings is expected in the coming years, which is why it can be assumed with a high degree of certainty that the deferred tax assets reported in the balance sheet can be realized through future taxable earnings. In accordance with IAS 12, deferred tax items must be recognized for the difference between the proportionate equity of a subsidiary recognized on the Group balance sheet and the investment carrying amount of this subsidiary on the tax balance sheet of the parent company (so-called “outside basis differences”) if it is likely that this difference will be realized. Since both KUKA Aktiengesellschaft and the subsidiaries in question are corporations, these differences are predominantly tax-exempt under section 8b of the Corporation Tax Law (KStG) upon realization and thus are permanent in nature. According to IAS 12.39, no deferred tax liability should be recognized even for temporary differences (e.g. those resulting from the 5% flat-rate allocation under section 8b KStG) if it is not likely, given control by the parent company, that these differences will reverse in the foreseeable future. Since no such reversal is expected, no deferred tax items had to be recognized on the balance sheet for this purpose. There are outside basis differences in the amount of €30.8 million (2018: €25.7 million).

Overall, the change to deferred tax assets and liabilities of –€3.3 million (2018: –€4.0 million) came from amounts affecting net income totaling –€2.6 million (2018: –€3.6 million) as well as changes in deferred taxes on pension obligations, for the most part not affecting net income, in the amount of €1.5 million (2018: –€0.9 million) and the deconsolidation of a foreign subsidiary amounting to –€1.3 million (2018: €0.0 million). There is no effect from the initial accounting for newly acquired fully consolidated companies. There were also relevant foreign exchange effects amounting to –€0.9 million (2018: €0.5 million).

6. Earnings per share

Undiluted/diluted earnings per share are as follows:

	2018	2019
Net income for the year attributable to the shareholders of KUKA AG (in € millions)	12.7	9.7
Weighted average number of shares outstanding (no. of shares)	39,775,470	39,775,470
Diluted/undiluted earnings per share (in €)	**0.32**	**0.24**

In accordance with IAS 33, undiluted earnings per share are calculated from the earnings due to the shareholders of KUKA Aktiengesellschaft and the weighted average number of shares outstanding for the year.

The weighted average number of shares in circulation remained unchanged at 39.8 million on the balance sheet date (December 31, 2018: 39.8 million shares).

Notes to the Group balance sheet: Assets

7. Intangible assets

The breakdown of the intangible fixed asset items and their development in the year under review and the previous year are shown in the following two tables.

Schedule of changes in intangible fixed assets in 2019

	Acquisition/manufacturing costs						
in € millions	Status as of Jan. 1, 2019	Exchange rate differences	Additions	Disposals	Change due to business combinations/others	Reclassifica-tions	Status as of Dec. 31, 2019
1. Licenses and other rights	291.0	4.3	8.1	4.0	–0.1	9.1	308.4
2. Self-developed software and other development costs	128.4	3.3	30.2	3.8	–	–6.0	152.1
3. Goodwill	317.1	6.6	–	–	–	–	323.7
4. Advances paid	11.3	–0.1	1.3	0.0	–	–3.1	9.4
	747.8	**14.1**	**39.6**	**7.8**	**–0.1**	**0.0**	**793.6**

Schedule of changes in intangible fixed assets in 2018

	Acquisition/manufacturing costs						
in € millions	Status as of Jan. 1, 2018	Exchange rate differences	Additions	Disposals	Change due to business combinations/others	Reclassifica-tions	Status as of Dec. 31, 2018
1. Licenses and other rights	246.2	5.5	18.7	10.2	17.0	13.8	291.0
2. Self-developed software and other development costs	92.9	2.1	36.4	3.0	–	0.0	128.4
3. Goodwill	308.5	7.3	0.7	1.0	1.6	–	317.1
4. Advances paid	21.2	–	3.9	0.0	–	–13.8	11.3
	668.8	**14.9**	**59.7**	**14.2**	**18.6**	**0.0**	**747.8**

The intrinsic value of the brands that exist in KUKA Group is always reviewed for impairment whenever a triggering event occurs, but at least once a year in an impairment test. This also happened in the 2019 fiscal year and the test results did not lead to any need for impairment. The intrinsic value of the residual carrying amount of €24.4 million (2018: €22.2 million) was confirmed.

Goodwill

With the introduction of the KUKA Business Organization (KBO) on January 1, 2019, the cash generating units also changed along with the segment structure. There are now five business segments – Systems, Robotics, Swisslog, Swisslog Healthcare and China, which also represent the cash generating units. Goodwill had to be reallocated accordingly as at January 1, 2019. It amounts to €308.7 million as at both December 31, 2018 and January 1, 2019. The Systems, Robotics and Other segments follow the new segment presentation. This means, firstly, that the so-called former Reis companies are now allocated to the Robotics segment and no longer to Systems and, secondly, that the former Other CGU has been integrated into the new Robotics CGU. The China segment contains the Systems and Robotics units located in China. The companies that were included in Swisslog in the previous year were allocated to Swisslog and Swisslog Healthcare. Separation or double reporting of the Chinese companies as in the segment reporting is not possible, because the existing goodwill may not be doubled either. It was therefore decided to allocate the Chinese units to the Swisslog and Swisslog Healthcare business segments for the impairment test. The following table shows the cash generating units (CGUs) in relation to the respective goodwill and the corresponding pre-tax discount rate used (weighted average cost of capital (WACC)) before the reorganization as at December 31, 2018, after the reorganization as at January 1, 2019 and at the end of the 2019 fiscal year:

Accumulated depreciation and impairment losses							Net carrying amount
Status as of Jan. 1, 2019	Exchange rate differences	Additions	Disposals	Change due to business combinations/ others	Reclassifica-tions	Status as of Dec. 31, 2019	Status as of Dec. 31, 2019
141.2	2.0	29.8	2.3	0.0	–	170.7	137.7
34.3	1.3	17.2	3.8	–	–	49.0	103.1
8.4	–	–	–	–	–	8.4	315.3
–	–	–	–	–	–	–	9.4
183.9	**3.3**	**47.0**	**6.1**	**0.0**	**–**	**228.1**	**565.5**

Accumulated depreciation and impairment losses							Net carrying amount
Status as of Jan. 1, 2018	Exchange rate differences	Additions	Disposals	Change due to business combinations/ others	Reclassifica-tions	Status as of Dec. 31, 2018	Status as of Dec. 31, 2018
119.2	2.2	29.3	9.5	0.0	–	141.2	149.8
20.8	0.9	15.6	3.0	–	–	34.3	94.1
8.4	–	–	–	–	–	8.4	308.7
–	–	–	–	–	–	–	11.3
148.4	**3.1**	**44.9**	**12.5**	**0.0**	**–**	**183.9**	**563.9**

	Dec. 31, 2018	
in € millions	Goodwill	WACC (%)
Robotics	18.9	13.0
Systems	68.3	15.1
Swisslog	191.0	11.3
Other	30.5	12.5
Total	**308.7**	

CGU	Jan. 1, 2019	Dec. 31, 2019	
in € millions	Goodwill	Goodwill	WACC (%)
Robotics	69.4	69.4	12.6
Systems	27.7	27.8	11.0
Swisslog	122.3	126.8	11.4
Swisslog Healthcare	54.9	56.9	9.8
China	34.4	34.4	12.3
Total	**308.7**	**315.3**	

The total amount of goodwill at the end of the 2019 fiscal year is now €315.3 million. The impairment test includes a three-year detailed planning period and a further period of three years based on strategic planning. From this total of six planning years and a market-specific growth rate of 2.0%, a transition year is determined which is used as the basis for calculating the perpetuity.

The cost of equity capital and borrowing costs are determined on the basis of segment-specific peer groups made up of KUKA's most important national and international competitors. Accordingly, these companies have similar activity and product portfolios.

The market risk premium for the respective CGUs is one of the most important components in the WACC calculation. A market risk premium of 7.00% was applied in all business segments. The beta factor determined as a three-year average of the respective peer group is 1.025 for the Systems CGU, 1.187 for the Robotics CGU, 1.158 for the Swisslog CGU, 0.888 for the Swisslog Healthcare CGU and 1.135 for the China CGU. There are no comparative values for the market risk premium or the beta factor due to the change in the organizational structure. While observing the possible ranges of the market risk premium, a 1% higher WACC would only marginally influence the goodwill – as marginally as a reduction in sales revenues over the entire planning period by 10% with a correspondingly lower cash flow.

The ratios for the cost of equity capital and the cost of borrowed capital were determined by CGU based on the average leverage ratios of the respective peer group for the last three years. The tax rates used per segment range between 21.0% and 27.6% (Systems CGU: 21.0%; Robotics CGU: 27.6%; Swisslog CGU: 22.0%; Swisslog Healthcare CGU: 22.1%; China CGU: 20.8%).

Self-developed software and other product development costs
Research & development expenses increased to €160.5 million in the reporting period (2018: €151.9 million). Costs incurred for self-developed software and other product developments must be capitalized in accordance with IAS 38. KUKA Group recognizes these expenses at production cost, which includes directly attributable costs and appropriate allocations for overheads and depreciation. Borrowing costs for qualifying assets are taken into account in the production costs based on the Group capitalization rate of 1.8% (2018: 1.7%).

The business segments are working – depending on their focus – on various projects relating to mechanical systems or power and control software for robots. Applications for medical technology and automation solutions are a further priority. Borrowing costs of €0.7 million were recognized for the 2019 fiscal year (2018: €0.4 million).

The carrying value of the development costs amounts to €103.1 million (2018: €94.1 million), representing an increase of €9.0 million on the previous year. The additions of €30.2 million (2018: €36.4 million) mainly include software solutions for the KR C5 and LBR iisy robots and the midsize successor. Please see the research and development report for further information.

The amortization amounts on intangible fixed assets may be noted from the schedule of changes in intangible fixed assets.

8. Tangible assets

The breakdown of the tangible asset items and their development in the year under review and the previous year are shown in the following table. Please refer to the management report for details of the investment focuses.

Schedule of changes in KUKA Group's tangible assets 2019

	Acquisition/manufacturing costs						
in € millions	Status as of Jan. 1, 2019	Exchange rate differences	Additions	Disposals	Change due to business combinations/others	Reclassifications	Status as of Dec. 31, 2019
1. Land, similar rights and buildings including buildings on land owned by third parties	269.1	1.4	24.9	29.1	−0.2	42.0	308.1
2. Technical plant and equipment	157.4	0.2	20.3	4.0	–	3.2	177.1
3. Other equipment, factory and office equipment	161.0	0.9	20.6	9.3	−0.5	1.5	174.2
4. Advances paid and construction in progress	197.6	2.8	45.7	166.5	–	−46.7	32.9
	785.1	**5.3**	**111.5**	**208.9**	**−0.7**	**0.0**	**692.3**

Schedule of changes in KUKA Group's tangible assets 2018

	Acquisition/manufacturing costs						
in € millions	Status as of Jan. 1, 2018	Exchange rate differences	Additions	Disposals	Change due to business combinations/others	Reclassifications	Status as of Dec. 31, 2018
1. Land, similar rights and buildings including buildings on land owned by third parties	218.3	1.9	37.9	2.4	−0.1	13.5	269.1
2. Technical plant and equipment	140.1	0.8	17.5	3.6	−0.1	2.7	157.4
3. Other equipment, factory and office equipment	152.0	0.3	19.1	12.7	−0.2	2.5	161.0
4. Advances paid and construction in progress	50.8	4.4	161.2	0.1	–	−18.7	197.6
	561.2	**7.4**	**235.7**	**18.8**	**−0.4**	**0.0**	**785.1**

The schedule of changes presented below includes the depreciation amounts. As in the previous year, no unscheduled depreciation had to be made within the tangible assets. Due to the completion of the production facilities in Augsburg and Shunde/China, a transfer was made from “Advances paid and construction in progress” to the category “Land, similar rights and buildings including buildings on land owned by third parties”. The disposals in the amount of €208.9 million (2018: €18.8 million) mainly include the derecognition of the production plant for the finance lease at KTPO. The education center under construction accounts for the largest share of advance payments and assets under construction.

Government grants

No or only negligible grants and allowances were deducted from the acquisition or production costs of the tangible assets, as in the previous year.

Government grants totaling €4.1 million (2018: €5.0 million) were received and directly released to income. There were no contingently repayable grants as of the balance sheet date.

9. Financial investments

In the year under review, two financial investments were made whose shareholdings exceed 10%. A 12.8% stake was acquired in Servotronix Motion Control Ltd./Israel, which was classified at fair value through other comprehensive income. 13.2% of the shares in Pharmony SA/Luxembourg were acquired and classified at fair value through profit or loss. KUKA Group additionally holds equity investments that generally do not exceed 10% of the voting rights. The carrying amount of the financial investments at the end of the 2019 fiscal year totaled €24.1 million (2018: €8.7 million).

10. Investments accounted for at equity

Investments accounted for at equity as at December 31, 2019 increased to five investments (December 31, 2018: three). Although the investments increased during the year under review, they are of minor significance for KUKA Group, both individually and in total, which is why there are no notes in accordance with IFRS 12.B12 and B13.

The aggregate amount of the shares in the loss of the investments accounted for at equity that has to be disclosed pursuant to IFRS 12.B16 rose from €2.3 million in 2018 to €3.6 million in 2019.

	Accumulated depreciation and impairment losses							Net carrying amount
	Status as of Jan. 1, 2019	Exchange rate differences	Additions	Disposals	Change due to business combinations/others	Reclassifications	Status as of Dec. 31, 2019	Status as of Dec. 31, 2019
	87.9	0.2	10.0	0.3	−0.2	–	97.6	210.5
	99.6	0.1	15.1	3.2	–	−0.2	111.4	65.7
	103.9	0.5	19.8	7.5	−0.2	0.2	116.7	57.5
	0.0	0.0	–	–	–	–	0.0	32.9
	291.4	**0.8**	**44.9**	**11.0**	**−0.4**	**0.0**	**325.7**	**366.6**

	Accumulated depreciation and impairment losses							Net carrying amount
	Status as of Jan. 1, 2018	Exchange rate differences	Additions	Disposals	Change due to business combinations/others	Reclassifications	Status as of Dec. 31, 2018	Status as of Dec. 31, 2018
	81.8	0.6	7.8	2.3	0.0	–	87.9	181.2
	87.7	−0.1	14.7	2.7	0.0	–	99.6	57.8
	95.7	0.5	19.5	11.7	−0.1	–	103.9	57.1
	0.0	0.0	–	–	–	–	0.0	197.6
	265.2	**1.0**	**42.0**	**16.7**	**−0.1**	**–**	**291.4**	**493.7**

11. Leases

KUKA as a lessor

KUKA Toledo Production Operations LLC, Toledo/USA (KTPO)

After production of the JK model was discontinued in April 2018, the existing contract, which was classified as a finance lease, was renegotiated. The existing contract was adapted to the new product requirements of the Jeep Wrangler and extended until March 2025. As in the previous pay-on-production model, KTPO supplies Chrysler with vehicle bodies. It was necessary to convert the production plant because a different automobile model is involved. The conversion was completed in 2019, allowing production to start in April 2019. With the start of series manufacture, the production plant, which was previously reported under property, plant and equipment and other assets, was derecognized and a finance lease receivable was capitalized. At the end of the fiscal year, the non-current lease receivable amounted to €152.0 million (2018: €0.0 million) and the current lease receivable to €28.9 million (2018: €0.0 million).

Translogic Corporation, Denver/USA

Talyst Systems LLC, Delaware/USA, was acquired in the 2017 fiscal year, as were the existing finance leases relating to portioning systems for medicines. A non-current lease receivable of €0.5 million (2018: €1.0 million) and a current lease receivable of €0.5 million (2018: €0.6 million) still existed in this connection as at the balance sheet date.

For accounting purposes, this results in a reduction of the sales revenues reported by Translogic by the fictitious leasing rate. The interest component included in the fictitious leasing rate is booked under interest result, while the repayment component of this payment reduces the receivables as per schedule.

Full payout lease agreements exist for both KTPO and Translogic due to the design of the respective leases. Future minimum lease payments thus correspond to the gross investment.

In total, a non-current lease receivable of €152.5 million (2018: €1.0 million) and a current lease receivable of €29.4 million (2018: €0.6 million) existed as at the balance sheet date.

The following table shows the reconciliation to the total present value of the outstanding total minimum lease payments for the two leases described above:

in € millions	2018	2019
Finance lease gross investments	1.6	222.0
(of which, not later than one year)	(0.6)	(42.3)
(of which, later than one year and not later than five years)	(1.0)	(169.1)
(of which, later than five years)	(0.0)	(10.5)
Unrealized financial income	0.0	–40.7
Present value of outstanding minimum lease payments	**1.6**	**181.8**
(of which, not later than one year)	(0.6)	(29.4)
(of which, later than one year and not later than five years)	(1.0)	(142.0)
(of which, later than five years)	(0.0)	(10.5)

KUKA as a lessee

With the introduction of the IFRS 16 leases standard, all leases must now be recognized in the balance sheet, subject to the exceptions set out in IFRS 16. Acting as a lessee, KUKA Group leases buildings, technical equipment, cars and IT hardware, among other things. As at the balance sheet date, right-of-use assets valued at €135.0 million (2018: €0.0 million) were capitalized and reported separately in the balance sheet. In the past fiscal year, there was an addition of €36.8 million in right-of-use assets (2018: €0.0 million). The right-of-use assets per existing asset class are shown below:

in € millions	2019
Right-of-use assets for land and buildings	117.0
Right-of-use assets for technical equipment	14.0
Right-of-use assets for other factory and office equipment	2.2
Other right-of-use assets	1.8
Total	**135.0**

These right-of-use assets are depreciated over the shorter of the lease term and the useful economic life. The prevailing period within KUKA Group is between 1 and 25.5 years, with an average of 4.0 years. The depreciation attributable to the respective functional areas amounts to €36.8 million for the 2019 fiscal year (2018: €0.0 million). The depreciation amount per asset class is shown below.

in € millions	2019
Depreciation of land and buildings	28.0
Depreciation of technical equipment	7.3
Depreciation of other factory and office equipment	0.9
Other depreciation	0.6
Total	**36.8**

In total, the cash outflows from leases amount to €38.5 million (2018: €0.0 million). The exceptions already described include short-term leases with a term of less than one year. The expenditure for this amounted to €3.9 million in the 2019 fiscal year (2018: €0.0 million). Leases for assets with an original price of less than €5,000 are a further exception. The amount incurred in this connection by KUKA Group in 2019 is €0.5 million (2018: €0.0 million).

The valuation of lease liabilities does not include expenses for variable lease payments amounting to €16.2 million (2018: €0.0 million).

Two companies have sublease agreements, from which income of €0.2 million was received in the reporting period (2018: €0.0 million). There are no sale-and-leaseback agreements in the Group.

KUKA Group expects future cash outflows of €3.3 million (2018: €0.0 million) from agreements already concluded but not yet started.

12. Inventories

in € millions	Dec. 31, 2018	Dec. 31, 2019
Raw materials and supplies	178.9	152.4
Work in process	131.4	83.8
Finished goods	106.6	92.6
Advances paid	49.9	15.7
Inventories	**466.8**	**344.5**

Write-downs, relative to gross value, amounted to €60.5 million in the reporting period (2018: €61.0 million), a slight decrease on the 2018 fiscal year. Impairment losses were reversed in the amount of €1.4 million, corresponding to an increase of €0.2 million over the previous year (2018: €1.2 million).

13. Trade receivables

Trade receivables as at the balance sheet date totaled €443.4 million (2018: €415.1 million). They have a residual term of less than one year.

Presented below is a breakdown of the receivables by age and recoverability:

	Receivables subject to IFRS 9 at the balance sheet date											
in € millions	Less than 31 days	31 to 60 days	61 to 90 days	91 to 180 days	More than 180 days	Total of receivables subject to IFRS 9	Impaired receivables before recording of impairment losses	Impairment loss	Carrying amount of impaired receivables	Total of receivables not overdue	Notes receivable	Net carrying amount
As of Dec. 31, 2018	84.8	27.9	8.8	13.2	13.2	147.9	33.7	26.5	7.2	260.0	–	415.1
As of Dec. 31, 2019	71.6	20.5	11.3	14.7	10.5	128.6	14.4	12.5	1.9	306.3	6.7	443.5

With the introduction of IFRS 9, a new mandatory impairment model was also introduced. The Incurred Loss Model was replaced by the Expected Loss Model. This lowered the threshold for recording losses from losses incurred to losses already expected. A loss rate was determined depending on the overdue period. Each company in the Group has the option of making additional write-downs based on empirical values. The loss rate for the “none” category, for example, in the 2018 fiscal year is higher because a receivable has been in default in the past even though there was no maturity.

The expected loss on trade receivables is shown below:

Overdue period in days	2018		2019	
	Loss rate	Impairment in € millions	Loss rate	Impairment in € millions
None	0.037%	0.0	0.022%	0.0
1 – 29	0.013%	0.0	0.025%	0.0
30 – 59	0.013%	0.0	0.074%	0.0
60 – 89	0.433%	0.1	0.824%	0.1
Over 90	10.580%	2.7	10.421%	1.2

As at December 31, 2019, valuation allowances for trade receivables amounted to €12.5 million (December 31, 2018: €26.5 million). Additions in the year under review fell to €5.6 million (2018: €22.6 million). The additions to impairment losses break down into specific bad debt allowances of €5.1 million (2018: €16.8 million) and lump-sum bad debt allowances of €0.5 million (2018: €5.8 million).

in € millions	2018	2019
Impairment losses as of Jan. 1	**14.7**	**26.5**
Change in scope of consolidation	–	−0.6
Additions	22.6	5.6
Consumption and foreign currency effects	−2.0	−3.9
Reversals	−8.8	−15.1
Impairment losses as of Dec. 31	**26.5**	**12.5**

14. Contract assets and contract liabilities

Contract assets amounted to €461.5 million at the end of the reporting period (December 31, 2018: €493.9 million). This represents a slight decline on the previous year. Contract liabilities decreased from €406.8 million in 2018 to €337.1 million in 2019. The major part of contractual assets and contractual liabilities relates to services under long-term construction contracts, as the service provided by KUKA and the payments from customers in the course of the contract may differ here. Accordingly, the main change in contractual assets and liabilities is attributable to the fulfillment of the performance obligation.

Due to the close link in terms of content as well as the clearer form of presentation, this chapter deals with both the asset and liability items. The contract assets and contract liabilities for the year under review and the previous year are shown below:

in € millions	Contract assets	Contract liabilities
Jan. 1, 2019	493.9	406.8
Sales revenues included in contractual liabilities at the beginning of the period		−1.5
Increase due to customer payments received less the value recognized as revenue during the period		250.9
Sales revenues recognized during the period		−108.7
Reclassification from contractual assets to trade receivables	−401.8	–
Changes due to adjustment of the progress	422.0	−127.6
Changes due to business combinations	1.4	3.8
Other changes	−54.0	−86.6
Dec. 31, 2019	**461.5**	**337.1**

in € millions	Contract assets	Contract liabilities
Jan. 1, 2018	513.7	308.1
Sales revenues included in contractual liabilities at the beginning of the period		18.1
Increase due to customer payments received less the value recognized as revenue during the period		34.9
Reclassification from contractual assets to trade receivables	−168.2	
Changes due to adjustment of the progress	136.2	24.7
Changes due to business combinations	0.0	11.3
Other changes	12.2	9.7
Dec. 31, 2018	**493.9**	**406.8**

In the reporting period, €5.0 million (2018: €0.2 million) in revenue was recognized from performance obligations that had already been completely or partially fulfilled in earlier periods. These payments from customers are based on payment plans that are part of the contract with the customer. As in the previous year, no contract costs have been capitalized. An expected loss on the contractual assets amounting to €5.9 million was recognized in the 2019 fiscal year (2018: €3.0 million).

15. Other assets, prepaid expenses and deferred charges

in € millions	2018	2019
Non-current other assets		
Non-current other receivables	14.5	18.5
Other	4.2	1.6
Total	**18.7**	**20.1**
Current other assets		
Claims on tax authorities	41.3	35.7
Other	89.0	116.7
Total	**130.3**	**152.4**
Other assets, prepaid expenses and deferred charges	**149.0**	**172.5**

The claims on tax authorities in the amount of €35.7 million (2018: €41.3 million) mainly include sales tax receivables. The “Other” category within current other assets includes investments in short-term securities with a term of significantly less than one year.

The age and recoverability of the financial instruments reported under other assets in accordance with IFRS 7 are shown in the following table:

in € millions	Impaired receivables before recording of impairment losses	Impairment loss	Carrying amount of impaired receivables	Neither impaired nor past due as of the balance sheet date	Net carrying amount
Dec. 31, 2018	1.5	–1.5	0.0	32.5	32.5
Dec. 31, 2019	1.8	–0.3	1.5	79.3	80.8

There are no other assets that are past due but not yet impaired as at December 31, 2019 or December 31, 2018. Impairment losses on other assets as at December 31, 2019 amounted to €0.3 million, a decrease of €1.2 million compared to the previous year (2018: €1.5 million).

16. Cash and cash equivalents

All cash and cash equivalents reported in the balance sheet, such as cash on hand, checks and cash balances with financial institutions, have a remaining term of three months or less.

KUKA Group maintains bank balances exclusively at financial institutions with an excellent credit rating. Furthermore, funds to be invested are distributed across several financial institutions and the parent company in order to diversify risk.

As in the previous year, cash and cash equivalents of €0.5 million are subject to a restriction on availability. The continued high cash position is attributable to the cash contribution of Midea Group to the joint ventures established in the previous year and in the year under review. More detailed information on this can be found in note 26.

in € millions	Dec. 31, 2018	Dec. 31, 2019
Cash on hand	0.2	0.2
Cash and bank balances	477.9	584.1
Cash with limited availability	0.5	0.5
Total	**478.6**	**584.8**

Notes to the Group balance sheet: Equity and liabilities

17. Equity

The consolidated statement of changes in equity and the statement of comprehensive income show the changes in equity including those not affecting net income.

For more information on equity see the notes in the management report under "Disclosures in accordance with section 315 para. 4 of the German Commercial Code (HGB) including accompanying explanations".

18. Subscribed capital

As in the previous year, the company's share capital amounts to €103,416,222.00 (December 31, 2018: €103,416,222.00) and is subdivided into 39,775,470 no-par-value bearer shares outstanding (December 31, 2018: 39,775,470 shares). Each share carries one vote. The no-par-value bearer shares have a theoretical portion of the share capital amounting to €2.60.

19. Capital reserve

The capital reserve applies to KUKA Aktiengesellschaft.

20. Revenue reserves

The revenue reserves include:

- The accumulated retained earnings of KUKA Aktiengesellschaft and its consolidated subsidiaries
- Consolidation and exchange rate effects
- Actuarial gains and losses included in provisions for pensions and the associated deferred taxes
- Changes in financial instruments measured at fair value through other comprehensive income

This was affected by Midea Group's contribution to fully consolidated subsidiaries in which KUKA holds 50% of the share capital.

Deferred taxes totaling €5.1 million (2018: €3.7 million) from transactions not recognized in profit or loss are included in equity. These are primarily attributable to actuarial gains and losses from pensions.

Based on the resolution of the Annual General Meeting, a dividend of €0.30 per share for the 2018 fiscal year was distributed in the year under review.

21. Minority interests

Minority interests relate to Swisslog Healthcare Trading MEA LLC, Dubai/United Arab Emirates, Swisslog Middle East LLC, Dubai/United Arab Emirates, Swisslog Healthcare Shanghai Co. Ltd., Shanghai/China, KUKA Robotics (China) Co. Ltd., Shanghai/China as well as KUKA Robotics Manufacturing China Co. Ltd., Shanghai City/China.

Taking into account the effects of exchange rate variations and pro rata minority earnings, the carrying amount in equity arising from the minority holdings increased from €259.7 million in 2018 to €278.8 million in 2019. This increase is related to the joint venture in the Swisslog Healthcare business segment, in which Midea Group acquired a 50% stake through a cash contribution.

22. Management of capital

The primary objectives of KUKA Group's capital management are to support ongoing business operations with adequate financial resources and to increase shareholder value.

This requires sufficient equity (equity ratio), liquidity (net debt/liquidity) and an appropriate return on capital employed (ROCE). Management and controlling of the business divisions therefore also takes place based on these key indicators:

		2018	2019
Equity	€ millions	1,339.6	1,348.6
/Total equity	€ millions	3,218.5	3,426.6
Equity ratio	**%**	**41.6**	**39.4**
EBIT	€ millions	34.3	47.8
/Capital employed	€ millions	1,185.0	1,374.3
ROCE	**%**	**2.9**	**3.5**
Cash and cash equivalents	€ millions	478.6	584.8
Non-current financial liabilities	€ millions	–380.5	–382.0
Current financial liabilities	€ millions	–5.2	–152.6
Net liquidity	**€ millions**	**92.9**	**50.2**

With the introduction of IFRS 16 at the beginning of the fiscal year and the associated balance sheet extension, the equity ratio fell from 41.6% in 2018 to 39.4% in 2019. Net liquidity also declined, from €92.9 million to €50.2 million. On the one hand, cash and cash equivalents rose, while on the other hand there was also an increase in financial liabilities. In the previous year, cash and cash equivalents benefited from the cash contribution to the joint venture. In contrast, ROCE rose from 2.9% in 2018 to 3.5% in 2019 due to the improved EBIT.

23. Pension provisions and similar obligations

Appropriate pension provisions were established for liabilities from vested benefits and from current benefits paid to vested and former employees of KUKA Group as well as their surviving dependents. Depending on the legal, economic and tax situation in each of the countries concerned, various retirement benefit systems are in place that are as a rule based on employees' length of service and compensation.

Company retirement benefit coverage in the Group is provided through both defined contribution and defined benefit plans.

Defined benefit plans

Defined benefit plans in KUKA Group primarily concern plans in Germany, the United States, Switzerland, the United Kingdom and Sweden. The country-specific characteristics and legal regulations relating to defined benefit plans are presented in the following.

Germany

Obligations in Germany arise from agreements on company pension schemes concluded with various insurance institutions. The prerequisites regarding the type and amount of the entitlement depend on the employee's age and number of years with the company. The benefits include the components old-age pension, disability pension, widow's pension, death benefits and emergency assistance. New biometric actuarial assumptions (RT 2018G) were published in the 2018 fiscal year, which remain valid in the 2019 fiscal year. The average life expectancy continued to rise in Germany in the last few years, but not by as much as recently. It has not yet been possible to derive any long-term decline in the trend, but this circumstance has been taken into account in the new tables. Research results relating to observed mortality were also taken into account for the first time with a flat-rate discount. These indicate that employees with a higher income also have a greater life expectancy. Finally, the long-term decline in the probability of invalidity in the age range from 58 years onwards was taken into account in the new tables.

USA

The Systems division makes pension payments to its employees after they retire. Employees who entered the workers' union before September 14, 2004 are eligible to participate in the pension plan. The benefits are calculated on the basis of the rate applicable on the date they retire. This rate is composed of the years of service credited to the employee. Eligible employees are also provided with medical care. Owing to their benefit character, the obligations for post-employment medical benefits are also disclosed in this item according to IAS 19. These post-employment benefit provisions represent €0.6 million (2018: €0.6 million) of the total provisions and accruals. The Employee Retirement Income Security Act (ERISA) in the United States provides the legal and regulatory framework for these plans.

The defined benefit plan of the Swisslog division exists for both salaried and wage-earning employees. Both plans are managed by an insurance company and are legally independent. Both are closed to new participants and are financed entirely by the employer. Swisslog Group is able to determine the distribution of the assets. The plans are designed to avoid the necessity to provision for the expenses of additional benefits. However, each individual savings basket bears a fixed percentage of interest (guaranteed minimum return).

Switzerland

The plan is affiliated to a collective pension fund which is legally independent and exceeds the statutory minimum requirements in Switzerland (Occupational Old Age, Survivors' and Invalidity Pension Provision, BVG). All employees in this are insured for the financial consequences of age, invalidity and death. Contributions to the collective pension fund are made by the employer and employees. Responsibility for investing the assets is borne by the board of the collective pension fund, whilst Swisslog Group is only able to define the investment style. In addition Swisslog Group sets the interest rate on the individual age tranches – subject to the statutory rules. In the event of a deficit for the Swisslog pension tranche within the collective pension fund, various measures can be taken such as a reduced interest rate or additional pension contributions. The level of cover pursuant to BVG exceeds 100% as at the balance sheet date, as was the case at the balance sheet date of the previous year. The Swiss pension plan is based on the BVG 2015 generation tables (without risk sharing).

UK

The British defined benefit plan is also independent and has been closed to new participants since 2001. The assets are invested in an insurance fund. The plan is financed by the employer with the employees. Based on the statutory requirements a valuation is undertaken by an actuary every three years. In the event a deficit is calculated, it is necessary to establish a restructuring plan which also sets the future amortization payments to make good the deficit.

Sweden

The Swedish defined benefit plan is legally mandatory and is based on a collective agreement (agreement between the trade union and the Swedish employers). The plan cannot be changed by the company. The plan is available to all employees born before 1979. It covers the financial consequences of age, invalidity and illness. There is a defined contribution plan for those employees born after 1979. The defined benefit plan is financed by the employer. The liability is covered by plan assets in a pension institution administered by an external insurance company.

Defined contribution plans

For the defined contribution plans, the company pays contributions to a public or private pension insurance carrier. Upon payment of the contributions, the company has no further obligations. Total payments for pensions under defined contribution plans in the amount of €54.8 million compared to €55.2 million in 2018 are disclosed as expenses for the respective years. Under defined benefit plans, the company incurs an obligation to provide the benefits promised by the plan to current and former employees.

Disclosures on actuarial assumptions

The amount of pension obligations (defined benefit obligation) was calculated by actuarial methods for which estimates are unavoidable. In addition to assumptions related to life expectancy, this involves assumptions detailed below, which are dependent on the economic environment for each country in question:

Dec. 31, 2019	Germany	Switzerland	UK	Sweden	USA	Other
Demographic assumptions	RT 2018G	BVG 2015 GT mod	PMA08/PFA08, using the CMI 2018 projection model with a long term rate of improvement of 1.25%	FFFS 2007:31	RP-2014; Pri-2012/ MP-2019/ MP-2019 Blue Collar; Pri-2012(BC)/ MP2019	diverse
Discount factor	0.90%	0.25%	2.00%	1.67%	3.05 – 3.11%	0.75 – 7.10%
Expected rate of return on assets	n/a	0.25%	2.00%	1.67%	3.05 – 3.11%	0.75 – 7.10%
Wage dynamics	0.50%	1.25%	2.90%	2.30%	n/a	1.00 – 6.00%
Pension dynamics	1.00%/1.75%/ 2.50%	0.0%	3.65%	1.80%	n/a	0.00 – 2.25%
Changes in cost of medical services	n/a	n/a	n/a	n/a	6.75%	n/a

Dec. 31, 2018	Germany	Switzerland	UK	Sweden	USA	Other
Demographic assumptions	RT 2018G	BVG 2015 GT mod	PMA08/PFA08, using the CMI 2017 projection model with a long term rate of improvement of 1.25%.	FFFS 2007:31	RP-2006/ MP-2018 Blue Collar MP2018	diverse
Discount factor	1.75%	0.85%	2.80%	2.31%	4.10 – 4.14%	1.75 – 9.60%
Expected rate of return on assets	n/a	0.85%	2.80%	2.31%	4.10 – 4.14%	1.75 – 9.60%
Wage dynamics	0.50%	1.25%	2.90%	2.45%	n/a	1.00 – 6.0%
Pension dynamics	1.00% – 2.50%	0.0%	3.70%	1.95%	n/a	0.00 – 1.50%
Changes in cost of medical services	n/a	n/a	n/a	n/a	6.75%	n/a

The discount factor is determined based on the returns from high-quality, fixed-rate corporate bonds.

Wage dynamics encompass future increases in wages and salaries that are estimated annually by reference to factors such as inflation and economic conditions, among others.

The expected returns are derived from consensus forecasts for the respective asset classes. The forecasts are based on experience, economic data, interest forecasts and stock market expectations.

For funded plans, the pension obligations are reduced by an amount equal to the fund assets. If the fund assets exceed the defined benefit obligation, an asset is recognized according to IAS 19 and disclosed under other assets. If the fund assets do not cover the commitment, the net obligation is recognized as a liability under pension provisions.

Increases or decreases in either the present value of the defined benefit obligation or the fair value of the plan assets may give rise to actuarial gains or losses. This may be caused by factors such as changes in actuarial parameters, changes to estimates for the risk profile of the pension obligations and differences between the actual and expected returns on the fund assets.

The sensitivity analysis illustrates the extent to which changes in actuarial assumptions would impact defined benefit obligations recognized as at December 31, 2019:

Sensitivity analysis

Nature and degree of change in actuarial assumptions in € millions		Present value of the defined benefit obligation after change	Change[1]
Increase in the discount rate	by +0.25%	259.0	–8.9
Decrease in the discount rate	by –0.25%	276.0	8.1
Pension increase	by +0.25%	274.2	6.3
Pension reduction	by –0.25%	264.4	–3.5
Increase in life expectancy	by +1 year	277.1	9.2
Decrease in life expectancy	by –1 year	258.9	–9.0
Increase in wages and salaries	by +0.25%	269.4	1.5
Decrease in wages and salaries	by –0.25%	266.6	–1.3

[1] The changes in the actuarial assumptions have no linear impact on the calculation of the present value of the defined benefit obligation due to specific effects such as compound interest. Changing multiple assumptions simultaneously does not always correspond to the cumulative effect because there are interdependencies between factors. A new calculation of the defined benefit obligation must be made for each case.

Funding status of defined benefit pension obligations

	Germany		Switzerland		UK	
in € millions	2018	2019	2018	2019	2018	2019
Present value of pension benefits covered by provisions	70.3	75.0	–	–	–	–
Present value of pension benefits based on plan assets	–	–	141.0	111.0	20.0	24.3
Defined benefit obligation	70.3	75.0	141.0	111.0	20.0	24.3
Fair value of plan assets	–	–	121.1	91.2	14.4	19.1
Net obligation as of Dec. 31	**70.3**	**75.0**	**19.9**	**19.8**	**5.6**	**5.2**

Reconciliation/Development of the defined benefit obligation

The reconciliation of the obligation for key items from the beginning to the end of the fiscal year breaks down as follows:

	Germany		Switzerland		UK	
in € millions	2018	2019	2018	2019	2018	2019
Jan. 1	**74.4**	**70.3**	**137.7**	**141.0**	**21.5**	**20.0**
Other changes	–	–	–	–41.2	–	–
Current service costs	0.5	0.4	3.6	3.5	0.1	0.1
Interest expense (+)/interest income (–)	1.1	1.2	0.9	1.2	0.5	0.6
Actuarial gains (–)/losses (+)	–0.5	7.9	0.7	15.8	–0.7	2.6
Gains (–)/losses (+) on settlement	–0.1	–	–1.4	–10.0	–	–
Past service cost	–	–	–	–	–	0.1
Payments made	–5.1	–4.8	–5.8	–3.8	–1.5	–0.2
Currency translation	–	–	5.3	4.5	0.1	1.1
Dec. 31	**70.3**	**75.0**	**141.0**	**111.0**	**20.0**	**24.3**
(of which, funded by provisions)	(70.3)	(75.0)	(–)	(–)	(–)	(–)
(of which, based on plan assets)	(–)	(–)	(141.0)	(111.0)	(20.0)	(24.3)

	Sweden		USA		Other		Total	
	2018	2019	2018	2019	2018	2019	2018	2019
	–	–	–	–	6.5	6.8	76.8	81.8
	17.4	18.9	26.0	30.0	1.5	1.9	205.9	186.1
	17.4	18.9	26.0	30.0	8.0	8.7	282.7	267.9
	13.5	14.0	21.9	25.2	1.4	1.5	172.3	151.0
	3.9	**4.9**	**4.1**	**4.8**	**6.6**	**7.2**	**110.4**	**116.9**

	Sweden		USA		Other		Total	
	2018	2019	2018	2019	2018	2019	2018	2019
	16.7	**17.4**	**26.8**	**26.0**	**7.1**	**8.0**	**284.2**	**282.7**
	–	–	–	–	1.2	0.1	1.2	−41.1
	0.3	0.4	–	–	0.4	0.4	4.9	4.8
	0.4	0.4	1.0	1.1	0.1	0.1	4.0	4.6
	1.1	1.4	−1.4	3.9	0.1	0.6	−0.7	32.2
	–	–	–	–	0.1	–	−1.4	−10.0
	–	–	–	–	−0.2	–	−0.2	0.1
	−0.4	−0.4	−1.6	−1.5	−0.8	−0.5	−15.2	−11.2
	−0.7	−0.3	1.2	0.5	–	–	5.9	5.8
	17.4	**18.9**	**26.0**	**30.0**	**8.0**	**8.7**	**282.7**	**267.9**
	(–)	(–)	(–)	(–)	(6.5)	(6.8)	(76.8)	(81.8)
	(17.4)	(18.9)	(26.0)	(30.0)	(1.5)	(1.9)	(205.9)	(186.1)

Current service costs and interest expenses totaling €9.4 million (2018: €8.9 million) compare to benefit payments of €11.2 million during the fiscal year (2018: €15.2 million). The exchange rate effects, mainly relating to the Swiss franc, led to an increase in the defined benefit obligation by €5.8 million (2018: €5.9 million increase). Altogether, the defined benefit obligation decreased by €14.8 million compared with the previous year (2019: €267.9 million; 2018: €282.7 million).

Reconciliation / Development of plan assets

The reconciliation of plan assets and asset classes for the 2018 and 2019 fiscal years breaks down as follows:

in € millions	2018	2019
Jan. 1	**175.3**	**172.3**
Interest expense (–) / interest income (+)	2.4	2.6
Other changes	–0.1	–41.2
Actuarial gains (+) / losses (–)	–6.5	12.7
Employer contributions	8.4	8.8
Payments	–12.1	–8.9
Currency translation	4.9	4.7
Fair value of plan assets as of Dec. 31	**172.3**	**151.0**
Cash and cash equivalents	3.6	2.5
Shares	52.4	51.0
Bonds	78.8	69.9
Fixed-interest securities	–	1.6
Real estate	21.1	17.6
Other	16.4	8.4
Total	**172.3**	**151.0**

Investment and risk strategy

The allocation of plan assets to the various asset classes is determined taking potential returns and risks into account. Ratings and forecasts are used as the basis for selecting high-quality stocks and bonds. An optimal portfolio is achieved by ensuring a good balance of risky and risk-free investments. A corresponding committee has been set up for this to monitor the results at least once every half-year and to make changes if necessary to the composition of the plan assets. The company has identified the deterioration of the funded status due to the unfavorable development of plan assets and / or defined benefit obligations as a risk. KUKA monitors its financial assets and defined benefit obligations to identify this risk. In the case of the Swisslog Group pension plans the plan assets are managed by an independent entity as a rule. It provides a regular report so that by this means risk management is possible.

Maturity profile of defined benefit obligations

An overview of the expected benefit payments over the next ten years is presented below:

in € millions	2018	2019
Not later than one year	17.9	10.1
Later than one year and not later than five years	51.9	44.4
Later than five years and not later than ten years	69.3	58.0

24. Other provisions

in € millions	Status as of Jan. 1, 2019	Exchange rate differences	Change in scope of consolidation	Consumption	Reversals	Additions	Status as of Dec. 31, 2019
Warranty commitments and risks from pending transactions	67.5	0.1	0.0	–48.5	–3.4	62.0	77.7
Provisions for restructuring obligations	9.9	0.0	0.0	–5.4	–3.3	23.9	25.1
Miscellaneous provisions	89.3	0.6	0.0	–48.9	–6.0	49.4	84.4
Total	**166.7**	**0.7**	**0.0**	**–102.8**	**–12.7**	**135.3**	**187.2**

Within the provisions for warranty commitments and risks from pending transactions, €26.4 million (2018: €20.6 million) is attributable to impending losses and €51.3 million to warranty risks (2018: €46.9 million).

Provisions for restructuring obligations increased to €25.1 million as at the end of the fiscal year (2018: €9.9 million). This increase is related to the restructuring of a subdivision in the Robotics segment. A sustainable business model is being developed for the Robotics subdivision, which is responsible for project business. This will also entail job cuts. The objective is to make the subdivision more efficient and competitive with a simplified structure.

Of the miscellaneous provisions, €41.2 million (2018: €35.8 million) relates among other items to costs still to be incurred for orders already invoiced and litigation risks of €2.5 million (2018: €2.0 million).

The expected remaining term of the other provisions is generally up to one year.

25. Liabilities

Please refer to note 14 for the detailed development of contract liabilities for the year under review and the previous year.

	Remaining maturity		Dec. 31, 2019
in € millions	Up to one year	More than one year	Total
Liabilities due to banks	152.6	232.0	384.6
Accounts payable to affiliated companies	0.0	150.0	150.0
Financial liabilities	**152.6**	**382.0**	**534.6**
Trade payables	402.3	0.0	402.3
Lease liabilities	32.5	105.8	138.3
Contract liabilities	337.1	0.0	337.1
Income tax liabilities	46.1	0.0	46.1
Other liabilities and deferred income	229.9	43.7	273.6
(of which, for other taxes)	(60.2)	(0.0)	(60.2)
(of which, for social security payments)	(8.5)	(0.0)	(8.5)
(of which, liabilities relating to personnel)	(125.4)	(18.3)	(143.7)
(of which, for forward exchange transactions for currency hedging)	(6.8)	(0.1)	(6.9)
Total	**1,200.5**	**531.5**	**1,732.0**

	Remaining maturity		Dec. 31, 2018
in € millions	Up to one year	More than one year	Total
Liabilities due to banks	5.2	380.5	385.7
Financial liabilities	**5.2**	**380.5**	**385.7**
Trade payables	402.7	0.0	402.7
Contract liabilities	406.8	0.0	406.8
Income tax liabilities	40.5	0.0	40.5
Other liabilities and deferred income	287.7	35.9	323.6
(of which, for other taxes)	(58.1)	(0.0)	(58.1)
(of which, for social security payments)	(10.8)	(0.0)	(10.8)
(of which, liabilities relating to personnel)	(145.2)	(15.0)	(160.2)
(of which, for leases)	(0.0)	(0.0)	(0.0)
(of which, for forward exchange transactions for currency hedging)	(3.7)	(0.5)	(4.2)
Total	**1,142.9**	**416.4**	**1,559.3**

26. Financial liabilities / Financing

The existing financial liabilities are mainly the promissory note loans issued in 2015 and 2018.

Fixed interest rate agreements

in € millions	Face value as of balance sheet date Dec. 31, 2018	Dec. 31, 2019	Nominal interest rate	Maturity	Net carrying amount 2018	2019
EUR promissory note loan						
Tranche 1	142.5	142.5	1.15% p.a. (MS +80bps)	2015 – 2020	142.3	142.4
Tranche 2	107.5	107.5	1.61% p.a. (MS +100bps)	2015 – 2022	107.3	107.3
Total promissory note loan	**250.0**	**250.0**	**ø 1.35% p.a.**	**5 / 7 years**	**249.6**	**249.7**

€250 million promissory note loan

KUKA AG issued unsecured promissory note loans with a total volume of €250.0 million on October 9, 2015. After deducting the transaction costs, KUKA received a total of €248.9 million from this issue.

The total volume was placed in two separate tranches. Tranche 1 has a volume of €142.5 million with an original term to maturity of five years (maturing October 2020); tranche 2 has a volume of €107.5 million and an original term to maturity of seven years (maturing October 2022). Interest payments are made at yearly intervals on October 9. Interest of €0.8 million (2018: €0.8 million) was accrued as of the balance sheet date.

The terms and conditions of the promissory note loan contain a standard change-of-control clause. Accordingly, immediately it learns of a change of control, KUKA Aktiengesellschaft must disclose this in accordance with the terms and conditions of the loan. The lenders then have the right, within 30 days of receiving notification of a change of control, to demand repayment of their (pro rata) loan at the next interest due date after receipt of the request for repayment and the interest due up to the date of repayment. A "change of control" within the meaning of the terms and conditions of the loan is given if a person or persons acting in concert directly or indirectly (i) either hold more than 30% of the voting shares, (ii) hold more than 30% of the voting rights in the company and / or (iii) otherwise have the possibility of directing the company's business policy.

Variable interest rate liabilities

in € millions	Face value as of balance sheet date Dec. 31, 2018	Dec. 31, 2019	Nominal interest rate	Maturity	Net carrying amount 2018	2019
USD assignable loan						
Tranche 1	8.7	8.9	2.75% p.a. (3M USD-LIBOR + 85bps)	2018 – 2020	8.7	8.9
Tranche 2	78.6	80.1	2.95% p.a. (3M USD-LIBOR + 105bps)	2018 – 2022	78.3	79.9
Tranche 3	43.7	44.5	3.3% p.a. (3M USD-LIBOR + 140bps)	2018 – 2023	43.5	44.4
Total assignable loan	**131.0**	**133.5**	**ø 3.05% p.a.**	**2 / 3.5 / 5 years**	**130.5**	**133.2**

in € millions	Net carrying amount	Avg. nominal interest rate	Year of latest maturity
Liabilities due to banks as of Dec. 31, 2019	–		
Liabilities due to banks as of Dec. 31, 2018	4.3	0.85% p.a.	2019

USD 150 million assignable loan

In order to finance the construction of a new manufacturing facility under the terms of a pay-on-production contract of KUKA Toledo Production Operations LLC, Toledo, Ohio/USA (KTPO), this company has issued USD assignable loans with a total volume of USD 150.0 million in several maturity tranches, underwritten by KUKA AG: tranche 1 has a volume of USD 10.0 million with a term to maturity of two years (maturing August 2020), tranche 2 has a volume of USD 90.0 million with a term to maturity of 3.5 years (maturing February 2022), and tranche 3 has a volume of USD 50.0 million with a term to maturity of five years (maturing August 2023). The financing was received on August 10/September 10, 2018.

The interest rate of all three tranches is variable and based on the 3-month USD LIBOR rate plus a term-dependent margin. Interest payments are made quarterly.

The terms and conditions of the assignable loans contain a standard change-of-control clause. Accordingly, immediately it learns of a change of control, KUKA Aktiengesellschaft must disclose this in accordance with the terms and conditions of the loan. In this case, the lenders have the right, within 15 days of receiving notification of a change of control, to terminate the assignable loan agreements prematurely and demand repayment of their (pro rata) loan. A "change of control" within the meaning of the terms and conditions of the assignable loans is given if a person or persons acting in concert directly or indirectly (i) either hold more than 30% of the voting shares, (ii) hold more than 30% of the voting rights in KTPO or KUKA AG and/or (iii) otherwise have the possibility of directing the business policy of KTPO or KUKA Aktiengesellschaft. A change of the direct owner within Midea Group is not affected by this provision as long as Midea Group Co., Ltd. directly or indirectly holds 100% of the shares and voting rights of the new owner. Also excluded is restructuring within KUKA Group, i.e. a change of control at KTPO insofar as control is exercised by a KUKA Group company.

Inter-company loan

In December 2019, KUKA AG signed an inter-company loan agreement for the advance refinancing of the tranches of the existing promissory note loans due in August and October 2020 (US dollar assignable loan from 2018: USD 10.0 million, euro promissory note loans from 2015: €142.5 million) for a loan volume of €150.0 million with Midea International Corporation Company Limited, Hong Kong, a 100% subsidiary of Midea Group. At the same time, Midea International Corporation Company Limited declared in a subordination agreement with the syndicate banks of KUKA AG's syndicated loan agreement that its receivables arising from this loan agreement are deeply subordinated. KUKA AG received the loan amount on December 20, 2019. Repayment is due on June 20, 2025, i.e. the term is 5½ years. The interest rate applicable to the inter-company loan is 0.85% p.a.

Syndicated loan for KUKA Aktiengesellschaft

On February 1, 2018, KUKA AG concluded a syndicated loan agreement with a consortium of banks for a volume of €520.0 million. The agreement includes a surety and guarantee line ("guaranteed credit line") in the amount of €260.0 million and a working capital line ("cash line"), which can also be used for sureties and guarantees, likewise in the amount of €260.0 million.

The initial term of the loan agreement was five years until February 1, 2023 and contained two contractually agreed one-year extension options (5+1+1). With the approval of all banks for the first agreed extension option in 2018 and the second one in 2019, the term was extended in 2018 and 2019 by one year in each case. The loan agreement now terminates in February 2025. The syndicated loan agreement remains unsecured as before and contains only the customary equal treatment clauses and negative pledges. The agreed financial covenants with regard to thresholds for leverage (net financial liabilities/EBITDA) and interest coverage (EBITDA/net interest expense) remain unchanged.

As at the balance sheet date, the utilization of the guarantee facility and cash credit line from the syndicated loan agreement of KUKA AG amounted to a total of €185.6 million (2018: €225.4 million).

The contract contains a change-of-control clause that is typical in the industry, under the terms of which the syndicated banks may demand repayment of the loan in the event that a shareholder (or group of shareholders acting in concert) acquires control of at least 30% of the voting rights of KUKA Aktiengesellschaft, or otherwise has the ability to direct the business policy of the company. A change of the direct owner within Midea Group is not affected by this provision as long as Midea Group Co., Ltd. directly or indirectly holds 100% of the shares and voting rights of the new owner. The creditors may also declare the loan agreement due for repayment in the cases of a delisting, a squeeze-out or the conclusion of a control and/or profit transfer agreement with a company of Midea Group.

Guarantee facility lines from banks and surety companies

The guarantee facility lines granted by banks and surety companies outside the syndicated loan agreement total €153.0 million (2018: €118.0 million) as at December 31, 2019, and can be utilized up to a total volume of €150.0 million in accordance with the provisions of the syndicated loan agreement. At the end of the reporting year, the company had utilized €62.8 million (2018: €85.9 million). None of these bilaterally agreed guarantee facility lines contains a change-of-control clause.

Asset-backed securities program/sale of receivables

The ABS program with a volume of €25.0 million still in existence at the last balance sheet date expired in January 2019 as contractually agreed. As at the 2018 balance sheet date, KUKA Deutschland GmbH had utilized this structured receivables sales program in the amount of €14.0 million.

As part of working capital management, KUKA sold trade receivables totaling €41.0 million in December 2019.

Financial instruments measured at fair value

The breakdown of the financial assets and liabilities measured at fair value is shown below:

2019 in € millions	Level 1 [1]	Level 2 [1]	Level 3 [1]	Total
Financial assets	–	3.2	27.3	30.5
Financial liabilities	–	6.9	–	6.9

2018 in € millions	Level 1 [1]	Level 2 [1]	Level 3 [1]	Total
Financial assets	–	4.2	6.9	11.1
Financial liabilities	–	4.2	–	4.2

[1] With regard to the meaning of the individual levels, please refer to the assumptions and estimates/calculation of the fair value

There were no level 1 financial assets in the year under review or in the 2019 fiscal year. Level 2 mainly relates to forward exchange transactions carried as assets or liabilities. Financial assets decreased compared to the previous year, whereas financial liabilities increased. The second level contains the securities of the Group and the coverage of fluctuations in the exchange rates of major currencies such as USD or CNY. With the aid of standard financial mathematical techniques, the values are determined using current market parameters such as exchange rates and counterparty credit ratings (mark-to-market method) or quoted prices. Middle rates are used for this calculation.

As in the previous year, only financial assets are reported in the third level. Shares from equity holdings not traded on the market are assigned to this category. They are measured using the discounted future cash flows from the sale of a minority interest. Compared to the previous year, there was a significant increase due to the acquisition of the investments in Servotronix Motion Control Ltd., Israel – classified at fair value through other comprehensive income – and Pharmony SA, Luxembourg – classified at fair value through profit or loss.

All other financial instruments are reported at amortized cost and mainly correspond to the carrying amounts.

27. Other current/non-current liabilities and prepaid expenses/deferred charges

The other taxes included in the other liabilities primarily consist of sales, wage and church tax.

Other liabilities in the personnel area are mostly related to obligations from vacation entitlements (2019: €20.7 million; 2018: €19.2 million), flex-time credits (2019: €23.3 million; 2018: €25.1 million), variable compensation elements (2019: €46.0 million; 2018: €58.4 million) and pre-retirement ("Altersteilzeit") (2019: €17.6 million; 2018: €15.1 million). Pre-retirement obligations were reduced by the fair value of the corresponding fund assets (2019: €16.7 million; 2018: €13.3 million). The present value of entitlements from pre-retirement obligations (DBO) before offsetting was €34.3 million (2018: €28.4 million). Also reported under this item are, among other things, special payments, inventor's compensation, long-service awards and trade association fees.

Liabilities arising from finance leases are recognized at the present value of future lease payments and, in contrast to the previous year, are disclosed separately in the balance sheet.

28. Assets and liabilities held for sale

As at December 31, 2019, there were no plans to divest any (sub) divisions, meaning that there are no circumstances to report in accordance with IFRS 5.

29. Financial risk management and financial derivatives

a) Principles of risk management

As part of its general business activities, KUKA Group is exposed to various financial risks, in particular from movements in exchange rates and interest rates as well as counterparty risk and liquidity risk. The purpose of financial risk management is to identify, assess and manage these risks. The aim is to limit the potential negative impact on the financial position.

KUKA hedges the risks from operations, especially currency risks, and risks from financial transactions with financial derivatives. Transactions in financial derivatives are only entered into for hedging purposes, i. e. solely with reference to and for hedging underlying transactions. Whenever possible, KUKA AG is the central hedging partner of the Group companies, and it in turn hedges the Group's risks by concluding appropriate hedging transactions with banks. To reduce the credit risk, hedging transactions are only concluded with financial institutions with an excellent credit rating.

The fundamentals of the Group's financial policy are established by the Executive Board and implemented by Group Treasury in close cooperation with Group companies. The Executive Board is informed on a regular basis of the current risk positions and safeguards.

b) Currency risk

Risks arising from fluctuations in exchange rates that may affect the Group's cash flow – for example from investments, financing and already fixed or planned incoming and outgoing operational payments in foreign currencies – are hedged as they arise or become known through the use of derivative financial instruments with banks. Hedging may also cover future planned transactions such as planned purchases in foreign currencies. KUKA was not exposed to any significant exchange rate risks from its operating activities at the reporting date on account of these hedging activities.

All intra-Group loans denominated in foreign currencies were hedged accordingly. KUKA was therefore not exposed to any significant exchange rate risk in the area of financing at the reporting date.

Currency translation risks, i.e. measurement risks associated with balance sheet and income statement items in foreign currencies, are not hedged, but are continuously monitored.

Currency risk as defined by IFRS 7 arises on account of financial instruments that are denominated in a currency other than the functional currency and are of a monetary nature. Differences resulting from the translation of financial statements into the Group's presentation currency are not taken into consideration. Relevant risk variables are generally all non-functional currencies in which KUKA has financial instruments.

For the presentation of market risks, IFRS 7 requires sensitivity analyses that show the effects of hypothetical changes of relevant risk variables (for example, interest rates, exchange rates) on profit or loss and shareholders' equity. The periodic effects are determined by relating the hypothetical changes in the risk variables to the balance of financial instruments at the reporting date. It is assumed that the balance at the reporting date is representative for the year as a whole.

Currency sensitivity analyses are based on the following assumptions:

Major non-derivative monetary financial instruments (liquid assets, receivables, liabilities) are either directly denominated in the functional currency or are transferred as far as possible into the functional currency through the use of derivatives.

Major interest income and interest expense from financial instruments are also either recorded directly in the functional currency or transferred into the functional currency by using derivatives. For this reason, there can be no material effect on the variables considered in this connection.

The most important currency pairs for KUKA are considered when calculating currency sensitivities. This involves applying a hypothetical upward or downward revaluation of the national currency concerned against the relevant foreign currency.

in € millions	Dec. 31, 2018	Dec. 31, 2019
National currency: EUR		
EUR/USD		
EUR +10%	−2.2	0.6
EUR −10%	2.6	−0.8
EUR/JPY		
EUR +10%	−3.2	−1.7
EUR −10%	3.9	2.1
EUR/CNY		
EUR +10%	0.7	−0.3
EUR −10%	−0.9	0.3
EUR/HUF		
EUR +10%	−1.3	−1.1
EUR −10%	1.6	1.4
EUR/BRL		
EUR +10%	0.0	0.2
EUR −10%	0.0	−0.2
EUR/GBP		
EUR +10%	0.2	0.3
EUR −10%	−0.3	−0.4
EUR/CHF		
EUR +10%	1.9	−2.4
EUR −10%	−2.3	3.0
EUR/CZK		
EUR +10%	−0.8	−0.3
EUR −10%	1.0	0.4
EUR/SEK		
EUR +10%	−0.1	−0.5
EUR −10%	0.1	0.7
EUR/TWD		
EUR +10%	−0.5	−0.2
EUR −10%	0.6	0.3
EUR/THB		
EUR +10%	−0.4	−0.3
EUR −10%	0.5	0.4
EUR/KRW		
EUR +10%	−0.4	−0.7
EUR −10%	0.5	0.8
EUR/INR		
EUR +10%	0.2	0.3
EUR −10%	−0.2	−0.3
EUR/RON		
EUR +10%	0.0	0.1
EUR −10%	−0.1	−0.2
EUR/SGD		
EUR +10%	–	−0.3
EUR −10%	–	0.3

in € millions	Dec. 31, 2018	Dec. 31, 2019
National currency: CNY		
CNY/USD		
CNY +10%	0.5	−0.3
CNY −10%	−0.6	0.4
CNY/EUR		
CNY +10%	1.8	1.3
CNY −10%	−2.2	−1.6
CNY/JPY		
CNY +10%	−1.5	−1.6
CNY −10%	1.9	1.9
National currency: CHF		
CHF/SEK		
CHF +10%	−0.2	0.1
CHF −10%	0.2	−0.2
CHF/USD		
CHF +10%	−1.2	−1.1
CHF −10%	1.5	1.3
CHF/EUR		
CHF +10%	−9.7	−8.9
CHF −10%	11.8	10.9
National currency: USD		
USD/EUR		
USD +10%	−0.2	−1.1
USD −10%	0.2	1.3
USD/SEK		
USD +10%	0.0	−0.3
USD −10%	0.0	0.3

Assumptions concerning the future cannot be derived from this presentation of currency effects.

c) Interest rate risk

Risks from interest rate changes at KUKA are essentially the result of the USD promissory notes issued in 2018 and linked to a variable interest rate. These variable future interest payments were converted for the major part of the issue volume by concluding corresponding interest rate hedges in fixed interest rate agreements.

Interest rate risks from short-term investments/borrowings are not hedged as at the balance sheet date.

Interest rate risk is presented by way of sensitivity analyses in accordance with IFRS 7. These show the effects of changes in market interest rates on interest payments, interest income and expense, other income components and shareholders' equity. Interest rate sensitivity analyses are based on the following assumptions:

Changes in the market interest rates of non-derivative financial instruments with fixed interest rates only affect income if these are measured at their fair value. As such, all financial instruments with fixed interest rates that are carried at amortized cost (for example, the EUR promissory note loan) are not subject to interest rate risk as defined in IFRS 7.

Changes in market interest rates affect the interest income or expense of non-derivative variable-interest financial instruments, the interest payments of which are not designated as hedged items of cash flow hedges against interest rate risks.

An increase in market interest rates by 100 basis points across all currencies would have a positive effect on earnings of +€5.4 million (2018: +€4.3 million) based on the positions as at December 31, 2019. A decrease in market interest rates by 100 basis points across all currencies would have a negative effect on earnings of −€4.6 million (2018: −€3.9 million). The assumption was made for financial investments at the balance sheet date that the lower limit of the relevant interest rate amounts to −50 basis points. This hypothetical effect on the earnings results solely from short-term investments of €584.5 million (2018: €478.5 million in investments and €48.5 million in borrowings) as at the balance sheet date as well as from the variable interest-bearing, unhedged part of the USD promissory notes.

d) Credit risk

KUKA Group is exposed to credit risk from its operating activities and certain financing activities. A default can occur if individual business partners do not meet their contractual obligations and KUKA Group thus suffers a financial loss.

At the level of operations, the outstanding debts are continuously monitored in each area locally. There are regular business relations with major customers at multiple KUKA Group companies. The associated credit risks are subject to separate quarterly credit rating monitoring as part of the risk management system at the Group's Executive Board level for early detection of an accumulation of individual risks. Added to these measures are comprehensive routine checks implemented at segment level as early as the order initiation process (submission of offers and acceptance of orders) to verify the credit rating of potential business partners. Default risk is accounted for accordingly through individual impairments.

The maximum exposure to credit risk is represented by the carrying amounts of the financial assets that are carried in the balance sheet (including derivatives with positive market values). No agreements reducing the maximum exposure to credit risk had been concluded as of the reporting date.

e) Liquidity risk

One of KUKA AG's primary tasks is to coordinate and control the Group's financing requirements and to ensure the financial independence of KUKA and its ability to pay on time. With this goal in mind, KUKA Group optimizes the Group's financing and limits its financial risks. The treasury management and reporting system employed consistently throughout the Group is used for this purpose; it is continuously developed taking amendments to the Group structure and changes to market conditions and the regulatory environment into account. In addition, the Group's overall liquidity risk is reduced by closely monitoring Group companies and their control of payment flows.

In order to ensure the payment capability at all times and the financial flexibility of KUKA Group, KUKA Aktiengesellschaft keeps a liquidity reserve in the form of credit lines and cash funds. For this purpose, KUKA has placed promissory note loans, signed a syndicated facilities agreement with a consortium of banks and arranged for surety companies and banks to commit guarantee facility lines. The funding and guarantee requirements for business operations are ensured to a large extent internally by transferring cash funds (inter-company loans) and providing guarantees from the banks and the Group itself.

The following figures show the commitments for undiscounted interest and redemption repayments for the financial instruments subsumed under IFRS 7:

Dec. 31, 2019 in € millions	Cash flows 2020	Cash flows 2021	Cash flows 2022 – 2024	Cash flows 2025 et seq.
Non-current financial liabilities	–	–	232.0	–
Accounts payable to affiliated companies	–	–	–	150.0
Current financial liabilities	152.6	–	–	–
Accounts payable to affiliated companies	0.1	–	–	–
Trade payables	402.3	–	–	–
Non-current liabilities from leases	–	20.4	49.3	36.1
Current liabilities from leases	32.5	–	–	–
Other non-current liabilities and provisions	–	18.2	25.5	–
Other current liabilities and provisions	216.2	–	–	–

Dec. 31, 2018 in € millions	Cash flows 2019	Cash flows 2020	Cash flows 2021 – 2023	Cash flows 2024 et seq.
Non-current financial liabilities	8.9	159.6	242.0	–
Current financial liabilities	5.2	–	–	–
Accounts payable to affiliated companies	0.1	–	–	–
Trade payables	402.7	–	–	–
Other non-current liabilities and provisions	–	–	0.5	–
(of which, for leases)	(0.0)	(0.0)	(0.5)	(0.0)
Other current liabilities and provisions	72.8	–	–	–
(of which, for leases)	(0.0)	(0.0)	(0.0)	(0.0)

All financial instruments are included which were held at the balance sheet dates and for which payments have already been contractually agreed. Foreign currency amounts are expressed at the spot rate on the key date. The variable interest payments from the financial instruments were determined on the basis of the interest rates last fixed prior to December 31, 2019. Financial liabilities repayable at any time are always allocated to the earliest period.

f) Hedges

Hedges are used by KUKA Group exclusively in the form of forward exchange transactions and interest rate swaps to secure existing balance sheet items as well as to hedge future payment flows. These are exclusively for the purpose of hedging currency and interest rate risks.

Other disclosures on financial instruments

KUKA Group classifies its financial instruments at amortized cost, at fair value through profit or loss and at fair value through other comprehensive income. The following table shows the development of financial assets and liabilities for the year under review and the previous year:

	Abbreviation	Dec. 31, 2018	Dec. 31, 2019
At amortized cost	AC	923.8	1,567.4
At fair value through profit or loss	FVtPL	12.5	14.8
At fair value through other comprehensive income	FVOCI	–	15.7
Total financial instruments (assets)		**936.3**	**1,597.9**
At amortized cost	FLAC	873.0	846.1
At fair value through profit or loss	FVtPL	3.7	6.8
Total financial instruments (liabilities)		**876.7**	**852.9**

Carrying amounts and fair values by measurement categories for 2019

The carrying amounts and the fair values according to IFRS 9 are presented in the following table:

Assets

in € millions	IFRS 9 measurement category	Net carrying amount/Status as of Dec. 31, 2019	of which, other assets and liabilities not covered by IFRS 7	of which, other assets and liabilities covered by IFRS 16	Net carrying amount of financial instruments/Status as of Dec. 31, 2019	Fair value/Status as of Dec. 31, 2019
Financial investments		24.1	–	–	24.1	24.1
(of which, loans)	AC	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
(of which, participations)	FVtPL	(8.4)	(0.0)	(0.0)	(8.4)	(8.4)
(of which, participations)	FVOCI	(15.7)	(0.0)	(0.0)	(15.7)	(15.7)
Investments accounted for by the equity method	n.a.	34.0	34.0	–	–	–
Long-term finance lease receivables	n.a.	152.5	–	152.5	–	–
Other long-term receivables and other assets		20.0	19.1	–	0.9	0.9
(of which, derivatives without a hedging relationship)	FVtPL	(0.3)	(0.0)	(0.0)	(0.3)	(0.3)
(of which, trade receivables)	AC	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
(of which, from the category AC)	AC	(0.6)	(0.0)	(0.0)	(0.6)	(0.6)
(of which, other)	n.a.	(19.1)	(19.1)	(0.0)	(0.0)	(0.0)
Trade receivables	AC	443.5	–	–	443.5	443.5
Contract assets	AC	461.5	–	–	461.5	461.5
Receivables from affiliated companies	AC	–	–	–	–	–
Current finance lease receivables	n.a.	29.4	–	29.4	–	–
Other assets, prepaid expenses and deferred charges		152.4	69.3	–	83.1	83.1
(of which, derivatives without a hedging relationship)	FVtPL	(2.9)	(0.0)	(0.0)	(2.9)	(2.9)
(of which, other from the category AC)	AC	(77.0)	(0.0)	(0.0)	(77.0)	(77.0)
(of which, other from the category FVtPL)	FVtPL	(3.2)	(0.0)	(0.0)	(3.2)	(3.2)
(of which, other)	n.a.	(69.3)	(69.3)	(0.0)	(0.0)	(0.0)
Cash and cash equivalents	AC	584.8	–	–	584.8	584.8
Total financial instruments (assets)					**1,597.9**	**1,597.9**

Liabilities

in € millions	IFRS 9 measurement category	Net carrying amount/ Status as of Dec. 31, 2019	of which, other assets and liabilities not covered by IFRS 7	of which, other assets and liabilities covered by IFRS 16	Net carrying amount of financial instruments/ Status as of Dec. 31, 2019	Fair value/ Status as of Dec. 31, 2019
Non-current financial liabilities	FLAC	232.0	–	–	232.0	232.0
Accounts payable to affiliated companies	FLAC	150.0	–	–	150.0	150.0
Long-term finance lease receivables	n.a.	105.8	–	105.8	0.0	0.0
Other non-current liabilities and provisions		43.7	43.7	–	0.0	0.0
(of which, derivatives without a hedging relationship)	FVtPL	(0.1)	–	–	(0.1)	(0.1)
Current financial liabilities	FLAC	152.6	–	–	152.6	152.6
Trade payables	FLAC	402.3	–	–	402.3	402.3
Contract liabilities	n.a.	337.1	337.1	–	–	–
Accounts payable to affiliated companies	FLAC	0.0	–	–	0.0	0.0
Current finance lease liabilities	n.a.	32.5	–	32.5	0.0	0.0
Other current liabilities, prepaid expenses and deferred charges		229.9	163.9	–	66.0	66.0
(of which, derivatives without a hedging relationship)	FVtPL	(6.8)	–	–	(6.8)	(6.8)
(of which, other from the category FLAC)	FLAC	(59.2)	–	–	(59.2)	(59.2)
(of which, other)	n.a.	(163.9)	(163.9)	–	(0.0)	(0.0)
Total financial instruments (liabilities)					**852.9**	**852.9**

Carrying amounts and fair values by measurement categories for 2018

The carrying amounts and the fair values according to IFRS 9 for the 2018 fiscal year are shown in the following table:

Assets

in € millions	IFRS 9 measurement category	Net carrying amount/ Status as of Dec. 31, 2018	of which, other assets and liabilities not covered by IFRS 7	of which, other assets and liabilities covered by IAS 17	Net carrying amount of financial instruments/ Status as of Dec. 31, 2018	Fair value/ Status as of Dec. 31, 2018
Financial investments		8.7	–	–	8.7	8.7
(of which, loans)	AC	(1.8)	(0.0)	(0.0)	(1.8)	(1.8)
(of which, participations)	FVtPL	(6.9)	(0.0)	(0.0)	(6.9)	(6.9)
Long-term finance lease receivables	n.a.	1.0	–	1.0	–	–
Other long-term receivables and other assets		18.7	15.4	–	3.3	3.3
(of which, derivatives without a hedging relationship)	FVtPL	(0.2)	(0.0)	(0.0)	(0.2)	(0.2)
(of which, trade receivables)	AC	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
(of which, from the category AC)	AC	(3.1)	(0.0)	(0.0)	(3.1)	(3.1)
(of which, other)	n.a.	(15.4)	(15.4)	(0.0)	(0.0)	(0.0)
Trade receivables	AC	415.1	–	–	415.1	415.1
Contract assets	n.a.	493.9	(493.9)	–	–	–
Receivables from affiliated companies	AC	–	–	–	–	–
Current finance lease receivables	n.a.	0.6	–	0.6	–	–
Other assets, prepaid expenses and deferred charges		130.4	(99.8)	(–)	(30.6)	(30.6)
(of which, derivatives without a hedging relationship)	FVtPL	(4.0)	(0.0)	(0.0)	(4.0)	(4.0)
(of which, other from the category AC)	AC	(25.2)	(0.0)	(0.0)	(25.2)	(25.2)
(of which, other from the category FVtPL)	FVtPL	(1.4)	(0.0)	(0.0)	(1.4)	(1.4)
(of which, other)	n.a.	(99.8)	(99.8)	(0.0)	(0.0)	(0.0)
Cash and cash equivalents	AC	478.6	–	–	478.6	478.6
Total financial instruments (assets)					**936.3**	**936.3**

Liabilities

in € millions	IFRS 9 measurement category	Net carrying amount/ Status as of Dec. 31, 2018	of which, other assets and liabilities not covered by IFRS 7	of which, other assets and liabilities covered by IAS 17	Net carrying amount of financial instruments/ Status as of Dec. 31, 2018	Fair value/ Status as of Dec. 31, 2018
Non-current financial liabilities	FLAC	380.4	–	–	380.4	380.4
Other non-current liabilities and provisions		35.4	35.4	–	–	–
(of which, for leases)	n.a.	(0.0)	–	(0.0)	(0.0)	(0.0)
(of which, other)	n.a.	(35.4)	(35.4)	–	(0.0)	(0.0)
Current financial liabilities	FLAC	5.2	–	–	5.2	5.2
Trade payables	FLAC	402.7	–	–	402.7	402.7
Contract liabilities	n.a.	406.8	(406.8)	–	–	–
Accounts payable to affiliated companies	FLAC	–	–	–	–	–
Other current liabilities, prepaid expenses and deferred charges		287.5	199.1	–	88.4	88.4
(of which, for leases)	n.a.	(0.0)	–	(0.0)	(0.0)	(0.0)
(of which, derivatives without a hedging relationship)	FVtPL	(3.7)	–	–	(3.7)	(3.7)
(of which, other from the category FLAC)	FLAC	(84.7)	–	–	(84.7)	(84.7)
(of which, other)	n.a.	(199.1)	(199.1)	–	(0.0)	(0.0)
Total financial instruments (liabilities)					**876.7**	**876.7**

With the exception of financial investments and lease receivables, the assets usually have short remaining terms. It can therefore be assumed that the carrying amounts at the balance sheet date essentially correspond to the fair value. Taking into account various parameters such as interest rates and customer-specific credit ratings, long-term interest-bearing receivables, including receivables from finance leases, are measured and, if necessary, written down. As a result, the carrying amounts of long-term interest-bearing receivables are virtually identical to their fair values.

The valuation of the liabilities is simultaneous with the valuation of the assets. Non-current financial liabilities, lease liabilities with a remaining term of more than one year and other non-current liabilities are the exception to the usually short remaining terms of other liabilities. For this reason, the carrying amounts approximately reflect the fair value in this case too.

The derivative financial instruments recognized at the balance sheet date are forward exchange transactions to hedge exchange rate risks. They are recognized in the balance sheet at the market value determined using standardized financial mathematical methods – depending on forward exchange rates, among other things.

Net results listed according to measurement categories are thus represented as follows:

Net profit/loss by IFRS 9 measurement categories for the 2019 fiscal year

	Net gains/ losses	Total interest income/ expenses	Commission income/ expenses
At Amortized Cost (AC)	−2.7	16.9	–
Fair Value through Profit and Loss (FVtPL)	−3.5	0.2	–
Fair Value through Other Comprehensive Income (FVOCI)	−0.2	0.0	–
Financial Liabilities Measured at Amortized Cost (FLAC)	11.5	−8.1	−1.5
Total	**5.1**	**9.0**	**−1.5**

Net profit/loss by IFRS 9 measurement categories for the 2018 fiscal year

	Net gains/ losses	Total interest income/ expenses	Commission income/ expenses
At Amortized Cost (AC)	24.6	9.4	–
Fair Value through Profit and Loss (FVtPL)	−4.6	3.0	–
Fair Value through Other Comprehensive Income (FVOCI)	0.0	0.0	–
Financial Liabilities Measured at Amortized Cost (FLAC)	7.5	−5.2	−1.6
Total	**27.5**	**7.2**	**−1.6**

The Amortized Cost (AC) category shows a loss in the year under review. The profit in the previous year was attributable to the sale of two companies. The Amortized Cost (AC) category only comprises foreign exchange effects and the results of additions and releases of valuation allowances. The total interest income includes interest income on bank balances and foreign currency effects on financing activities.

The Fair Value through Profit and Loss (FVtPL) category primarily relates to foreign currency effects relating to total interest income. In addition to foreign currency effects, net losses also include losses from the disposal of financial assets.

The Fair Value through Other Comprehensive Income (FVOCI) category comprises foreign currency effects resulting in a net loss.

The net profit in the Financial Liabilities Measured at Amortized Cost (FLAC) category originates from the release of liabilities. As in the previous year, the total interest expenses also mainly relate to interest expenses for banks.

Commission expenses are recorded as the transaction costs for financial liabilities due to banks and fees for the provision of guarantees.

30. Contingent liabilities and other financial commitments

At the end of the fiscal year, the Group had obligations from guarantees of €0.0 million (2018: €2.0 million) and obligations from warranty agreements amounting to €4.5 million (2018: €0.2 million).

in € millions	2018	2019
Purchase commitments (discounted notes)	40.8	7.0
Rent/lease liabilities	160.7	21.8
Other financial commitments	14.5	12.5
Total	**216.0**	**19.5**

The introduction of IFRS 16 led to a reduction in rental and leasing commitments. Please refer to the comments on rental and leasing commitments under note 11.

As most of the construction work, with the exception of the education center, for example, has been completed, the purchase commitments declined accordingly.

In the year under review, rental expenses of €21.8 million (2018: €53.8 million) were incurred, whereas there was no rental income (2018: none). This significant reduction is due to the recognition of leased assets in the balance sheet in connection with the introduction of IFRS 16.

Notes to the Group cash flow statement

In accordance with IAS 7, the cash flow statement discloses cash flows separately for incoming and outgoing funds from operating, investing and financing activities. Cash flow is determined from KUKA Aktiengesellschaft's consolidated financial statements using the indirect method.

Cash and cash equivalents in the cash flow statement include all cash and cash equivalents disclosed in the balance sheet, i.e. cash on hand, checks and cash with banks provided they are available within three months.

As in the previous year, cash and cash equivalents of €0.5 million (2018: €0.5 million) are subject to restrictions on availability. These restrictions relate, for instance, to government funding for eligible development projects with a German company.

The starting point for determining the cash flow from operating activities, which is derived indirectly, is earnings after taxes. The changes to the balance sheet items associated with operating activities are adjusted for currency translation effects and changes to the scope of consolidation.

Following the introduction of IFRS 16, lease expenses are no longer included in cash flow from operating activities, but the repayment and interest expenses are reported in cash flow from financing activities instead.

The income taxes include the current tax expenses, while the deferred tax expenses are taken into account in other non-cash expenses.

More detailed information can be found in the management report under "Financial position" and in the Group cash flow statement on page 65.

Notes to the Group segment reporting

The data for the individual annual financial statements have been segmented by business field and region. The structure follows internal reporting (management approach). The segmentation is intended to create transparency with regard to the earning power and the prospects, as well as the risks and rewards for the various business fields within the Group.

Segment reporting is based on the structure of KUKA Group. KUKA Group changed its organizational structure at the beginning of the 2019 fiscal year. The KUKA Business Organization (KBO) now comprises five main business segments: Systems, Robotics, Swisslog, Swisslog Healthcare and China. In the first three quarters, the Swisslog segment is referred to as Logistics Automation and the Swisslog Healthcare segment as Healthcare. The designations have been harmonized.

Systems

The Systems division offers custom-tailored complete solutions for automating manufacturing processes in the automotive industry. These include body production, the assembly of engines and transmissions, and also future-oriented business areas, such as electromobility with the development of charging assistants and battery module production systems. The portfolio 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.

Robotics

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 payload ranges from three to 1,300 kilograms.

Swisslog

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.

Swisslog Healthcare

The Swisslog Healthcare division develops and implements automation solutions for modern hospitals. The aim is to boost efficiency and increase patient safety. Due to process optimizations in the field of medication management during and after in-patient treatment, hospital staff have more time for patient care and patient satisfaction increases as a result. At the same time, the use of automation solutions demonstrably reduces the incidence of medication errors.

China

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 offered and sold in China.

KUKA AG and other companies

KUKA Group's operating activities are supplemented by KUKA Aktiengesellschaft and other shareholdings, which is why they are aggregated in a separate segment. Cross-divisional consolidation items are shown in a separate column. This includes, among other things, the elimination of duplicated companies, which are allocated to the Swisslog/Swisslog Healthcare and China business segments on account of the management approach. An overview of all Group companies, broken down by region, is shown in the schedule of shareholdings.

The following table presents a breakdown of sales revenues by region based on the customer's registered office/delivery location. It also shows non-current assets (consisting of tangible and intangible assets) determined according to the location of the companies.

	Revenues acc. to customer location		Non-current assets acc. to registered office of the company	
in € millions	2018	2019	2018	2019
Germany	718.0	738.3	341.9	385.0
Rest of Europe	734.7	748.6	336.2	145.2
North America	1,108.1	1,016.7	303.6	77.6
Other regions	681.3	689.0	75.9	324.3
Total	**3,242.1**	**3,192.6**	**1,057.6**	**932.1**

In the 2019 fiscal year, and thus in contrast to the previous year, KUKA Group generated more than 10% of total sales revenues with one customer. Total revenues of €339.1 million were achieved with this customer, divided between the Systems, Robotics and China business segments.

The calculations for segment reporting rely on the following principles:

- Group external sales revenues show the divisions' respective percentage of consolidated sales for the Group as presented in the Group income statement.
- Intra-Group sales revenues are sales transacted between segments. In principle, transfer prices for intra-Group sales are determined based on the market.
- Sales revenues for the segments include revenues from sales to third parties as well as sales to other Group segments.
- EBIT reflects operating earnings, i. e. the earnings from ordinary activities before financial results and taxes.
- Elimination of scheduled and unscheduled depreciation and amortization on tangible and intangible assets from EBIT produces EBITDA.
- ROCE (return on capital employed) is the ratio of EBIT to average capital employed, which is largely non-interest bearing. To calculate ROCE the capital employed is based on an average value.

The reconciliation of capital employed to segment assets and segment liabilities is shown in the following table:

in € millions		2018	2019
Capital employed			
	Intangible assets	563.9	565.5
+	Tangible assets	493.7	366.6
+	Long-term finance lease receivables	1.0	152.5
+	IFRS 16 right-of-use assets	–	135.0
+	**Asset-side working capital**	**1,568.2**	**1,477.6**
	Inventories	466.8	344.5
	Contract assets	493.9	461.5
	Trade receivables	415.1	443.5
	Other receivables and assets	192.4	228.1
=	**Asset items of capital employed**	**2,626.8**	**2,697.2**
./.	Other provisions	156.8	162.1
./.	Contract liabilities	406.8	337.1
./.	Trade payables	402.7	402.3
./.	Other liabilities except for liabilities similar to bonds (incl. deferred income)	308.8	398.8
=	**Liability-side working capital**	**1,275.1**	**1,300.3**
=	**Liability items of capital employed**	**1,275.1**	**1,300.3**
=	Capital employed	1,351.7	1,396.9
	Average capital employed	1,185.0	1,374.3
Segment assets			
	Asset items of capital employed	2,626.8	2,697.2
+	Other participations	8.7	24.1
+	Investments accounted for at equity	13.9	34.0
=	Segment assets	2,649.4	2,755.3
Segment liabilities			
	Liability items of capital employed	1,275.1	1,300.3
+	Pension provisions and similar obligations	110.4	116.9
+	Substantial restructuring provisions	9.9	25.1
=	Segment liabilities	1,395.4	1,442.3
Working capital			
	Asset-side working capital	1,568.2	1,477.6
./.	Liability-side working capital	1,275.1	1,300.3
=	**Working capital**	**293.1**	**177.3**

Additional elements of the segment reports are contained in the management report on the operating business divisions Robotics, Systems, Swisslog, Swisslog Healthcare and China, as well as in the tables at the beginning of the Group notes. The comparative figures for the 2018 fiscal year have also been reconciled to the new organizational structure. One-off effects in the 2019 fiscal year will no longer be adjusted.

Other notes

Related party disclosures

In accordance with IAS 24, persons or companies that may be influenced by or have influence on the reporting company must be disclosed separately, provided they have not already been included as consolidated companies in the financial statements.

Parties related to KUKA Group include mainly members of the Executive and Supervisory Boards as well as non-consolidated KUKA Group companies in which KUKA Aktiengesellschaft directly or indirectly holds a significant proportion of the voting rights or companies that hold a significant proportion of the voting rights in KUKA Aktiengesellschaft.

Related companies that are not consolidated include:

- IWK Unterstützungseinrichtung GmbH, Karlsruhe
- KUKA Unterstützungskasse GmbH, Augsburg

Related parties that are joint ventures include:

- Reis Robotic Intelligent Equipment (Chongqing) Co. Ltd., Chongqing/China
- Yawei Reis Robot Manufacturing (Jiangsu) Co. Ltd., Yangzhou City/China
- RoboCeption GmbH, Munich
- Pipeline Health Holdings LLC., Delaware/USA

Companies attributable to Midea Group are also related parties.

The following table shows the receivables from and liabilities to related parties for the 2018 and 2019 fiscal years:

in € millions	Shares of KUKA AG in %	Goods and services provided by the Group to related parties		Goods and services provided to the Group by related parties	
		Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019
Midea Group	–	1.1	21.5	0.1	155.9
Chang'an Reis (Chongqing) Robotic Intelligent Equipment Co. Ltd, China	50.0	0.3	0.1	0.4	0.0
Yawei Reis Robot Manufacturing (Jiangsu) Co. Ltd., China	49.0	0.3	–	1.1	0.2
Others/less than €1 million		–	–	0.1	0.1
Total		**1.7**	**21.6**	**1.7**	**156.2**

In the year under review, more services were provided to related parties and the value of services received from them was lower than in the previous year. A breakdown is shown in the following table:

in € millions	Shares of KUKA AG in %	Goods and services provided by the Group to related parties		Goods and services provided to the Group by related parties	
		Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019
Midea Group	–	0.3	21.6	3.5	4.0
Chang'an Reis (Chongqing) Robotic Intelligent Equipment Co. Ltd, China	50.0	2.2	4.5	12.8	–
Yawei Reis Robot Manufacturing (Jiangsu) Co. Ltd., China	49.0	7.9	1.4	1.8	5.5
Nebbiolo Technologies Inc., USA	11.8	0.2	–	–	0.1
RoboCeption GmbH, Munich	26.9	0.8	–	–	1.0
Other		–	–	–	0.0
Total		**11.4**	**27.5**	**18.1**	**10.6**

Business with all related parties is transacted under the “dealing at arm’s length” principle at transfer prices that correspond to market conditions. No business subject to reporting rules was conducted between any KUKA Group companies and members of KUKA Aktiengesellschaft’s Executive or Supervisory Boards with the exception of the legal transactions outlined in the compensation report.

Events after the balance sheet date

Mr. Helmut Zodl was appointed by court order to the Supervisory Board with effect from January 24, 2020 (by order of the Augsburg Local Court dated January 23, 2020). The Supervisory Board elected Mr. Zodl as a member of the Audit Committee with its resolution of January 29, 2020. Said committee elected Mr. Zodl as Chairman of the Audit Committee on the same day.

On February 20, 2020, KUKA’s Supervisory Board and Prof. Dr. Peter Hofmann, Chief Technology Officer, decided by mutual agreement to terminate their working relationship for personal reasons. Prof. Dr. Peter Hofmann had been Chief Technology Officer on the Executive Board since November 2019 and was also responsible for research and development in the Robotics business segment.

The particular risks and effects of the coronavirus crisis for KUKA cannot be assessed at this time.

Executive Board and Supervisory Board compensation

The Executive Board of KUKA Aktiengesellschaft received total compensation of €4.5 million (2018: €10.8 million). The total amount also includes parts of the severance payment for Dr. Till Reuter amounting to €2.0 million (2018: €3.6 million). The fixed salary including payments in kind and other compensation amounted to €1.9 million (2018: €2.1 million) for the entire Executive Board. Target achievement and performance-based compensation amounted to €0.6 million (2018: €5.2 million). €0.1 million (2018: €1.4 million) of this was paid out for compensation in accordance with the phantom share program. No payments were made under the Long-Term Incentive Plan or the KUKA Added Value Incentive Plan (KAVI).

With a few exceptions, former Executive Board members have been granted benefits from the company pension scheme, which include old-age, vocational and employment disability, widow’s and orphan’s pensions. The amount of accruals included for this group of persons in 2019 for current pensions and vested pension benefits totals €10.0 million (HGB) compared to €9.9 million in 2018. The retirement benefits paid in this connection amounted to €0.8 million (2018: €0.8 million).

KUKA Aktiengesellschaft has no compensation agreements with the members of the Executive Board or with employees that would come into effect in the event of a takeover bid.

For the 2019 fiscal year, the members of the Supervisory Board received a total of €1.1 million (2018: €1.1 million) for their activities as members of this board.

For further information and details about the compensation of individual Executive Board and Supervisory Board members, please refer to the notes in the audited compensation report, which forms an integral part of this Group management report. Additionally, the compensation report constitutes a part of the Corporate Governance report. It also describes the basic principles used to establish the compensation of the members of the Executive and Supervisory Boards of KUKA Aktiengesellschaft.

Audit fees

The fee for the auditor, KPMG AG, Wirtschaftsprüfungsgesellschaft, Augsburg, recognized as an expense in 2019 totals €0.6 million (2018: €0.7 million) for services provided in Germany. €0.6 million (2018: €0.7 million) was recognized for financial statement auditing services. As in the previous year, no expenses were recorded for tax advisory services or other services provided by the auditor.

€1.3 million (2018: €1.2 million) was recognized as an expense for financial statement auditing services performed for foreign subsidiaries. €0.0 million (2018: €0.0 million) was incurred for tax advisory services abroad and the same sum of €0.0 million (2018: €0.0 million) was incurred for other consultancy services.

Declaration regarding corporate governance

Reference is made to published information on the KUKA AG website for the declaration regarding corporate governance pursuant to section 289f of the German Commercial Code (HGB) in conjunction with section 315d HGB: www.kuka.com/en-de/investor-relations/corporate-governance/corporate-management.

Corporate bodies

Supervisory Board

Wilfried Eberhardt
Aichach, Germany
Employee representative
Chief Marketing Officer of KUKA Aktiengesellschaft

Hongbo (Paul) Fang
Foshan, Germany
Member of the Supervisory Board of KUKA Aktiengesellschaft (until May 31, 2019)
Chairman and CEO Midea Group

Dr. Yanmin (Andy) Gu
Guangzhou, China
Chairman of the Supervisory Board of KUKA Aktiengesellschaft
Vice President Midea Group, Board Director

Membership in comparable controlling bodies of business enterprises in Germany and abroad:

- Servotronix Motion Control Ltd., Petach Tikva, Israel
- Guangdong Midea Intelligent Technologies Co., Ltd., Foshan, China
- Midea Intelligent Technologies (Singapore) Pte. Ltd., Singapore
- Midea Electric Trading (Singapore) Co., Pte. Ltd., Singapore
- Midea Electric Trading (Thailand) Ltd., Bangkok, Thailand
- Midea Electric Espana S.R.L., Madrid, Spain
- Beautiland B.V., Amsterdam, Netherlands
- Frylands B.V., Amsterdam, Netherlands
- South American Holdco III, Amsterdam, Netherlands
- South American Holdco II B.V., Amsterdam, Netherlands
- Midea Electric Netherlands B.V., Amsterdam, Netherlands
- Midea Investment (Asia) Co. Ltd., Hong Kong, China
- PT Midea Heating and Ventilating Air Conditioner Indonesia, Jakarta, Indonesia

Manfred Hüttenhofer
Meitingen, Germany
Employee representative
Head of Motion Control Competence Center, KUKA Deutschland GmbH

Prof. Dr. Henning Kagermann
Königs Wusterhausen, Germany
Member of the Supervisory Board of KUKA Aktiengesellschaft
Chairman of the acatech Board of Trustees – German Academy of Science and Engineering, acatech Senator

Membership in other statutory supervisory boards:

- Deutsche Post AG (until May 15, 2019)
- Münchener Rückversicherungsgesellschaft (until April 30, 2019)

Armin Kolb
Augsburg, Germany
Employee representative
Chairman of the Group Works Council of KUKA Aktiengesellschaft
Chairman of the Works Council of the KUKA Plants at Augsburg

Michael Leppek
Stadtbergen, Germany
Deputy Chairman of the Supervisory Board of KUKA Aktiengesellschaft
Employee representative
1st Authorized Representative of IG Metall trade union, Augsburg branch

Membership in other statutory supervisory boards:

- MAN Energy Solutions SE
- AIRBUS Helicopters Deutschland GmbH

Carola Leitmeir
Großaitingen, Germany
Employee representative
Deputy Chairman of the Works Council of the KUKA Plants at Augsburg

Min (Francoise) Liu
Shunde, China
Member of the Supervisory Board of KUKA Aktiengesellschaft
HR Director Midea Group

Membership in comparable controlling bodies of business enterprises in Germany and abroad:

- Guangdong Midea Smart Link Home Technology Co. Ltd., Foshan, China
- Foshan Midea Zhihui Real Estate Development Co., Ltd., Foshan, China
- Midea Electric Espana S.R.L., Madrid, Spain
- Midea Polska SP.z.o.o., Warsaw, Poland

Dr. Myriam Meyer
Birchwil, Switzerland
Member of the Supervisory Board of KUKA Aktiengesellschaft
Proprietor of mmtec

Membership in other statutory supervisory boards:

- Lufthansa Technik AG, Hamburg, Germany

Membership in comparable controlling bodies of business enterprises in Germany or abroad:

- Wienerberger AG, Vienna, Austria

Tanja Smolenski
Berlin, Germany
Employee representative
Political Secretary to the Executive Committee of the IG Metall trade union
Head of the Fundamental Issues and Social Policy department of the Executive Committee of the IG Metall trade union, Berlin office

Alexander Tan
Singapore, Singapore
Member of the Supervisory Board of KUKA Aktiengesellschaft (until December 31, 2019)
CFO Goodpack Ltd.

Dr. Chengmao Xu
Shunde, China
Member of the Supervisory Board of KUKA Aktiengesellschaft (since June 17, 2019)

President of Corporate Research Center Midea Group

Helmut Zodl
Shunde, China
Member of the Supervisory Board of KUKA Aktiengesellschaft (since January 24, 2020)
CFO Midea Group

Executive Board

Peter Mohnen
Munich, Germany
Chief Executive Officer

Andreas Pabst
Bobingen, Germany
Chief Financial Officer

Prof. Dr. Peter Hofmann
Wiesenfelden, Germany
Chief Technology Officer (November 1, 2019 to February 20, 2020)

Schedule of shareholdings of KUKA Aktiengesellschaft

As at December 31, 2019

	Name and registered office of the company	Currency	Method of consolidation	Share of equity in %
Germany				
1	Bopp & Reuther Anlagen-Verwaltungsgesellschaft mbH, Augsburg, Germany	EUR	k	100.00
2	Device Insight GmbH, Munich, Germany	EUR	k	100.00
3	Faude Automatisierungstechnik GmbH, Ehningen, Germany	EUR	k	100.00
4	KUKA Deutschland GmbH, Augsburg, Germany [1]	EUR	k	100.00
5	KUKA Industries GmbH & Co. KG, Obernburg, Germany [1]	EUR	k	100.00
6	KUKA Systems GmbH, Augsburg, Germany [1]	EUR	k	100.00
7	Reis GmbH, Obernburg, Germany	EUR	k	100.00
8	Reis Group Holding GmbH & Co. KG, Obernburg, Germany [1]	EUR	k	100.00
9	Reis Holding GmbH, Obernburg, Germany	EUR	k	100.00
10	Swisslog (Deutschland) GmbH, Dortmund, Germany	EUR	k	100.00
11	Swisslog Augsburg GmbH, Augsburg, Germany	EUR	k	100.00
12	Swisslog GmbH, Dortmund, Germany	EUR	k	100.00
13	Swisslog Healthcare GmbH, Westerstede, Germany	EUR	k	100.00
14	Verwaltungsgesellschaft Walter Reis GmbH, Obernburg, Germany	EUR	k	100.00
15	Visual Components GmbH, Munich, Germany	EUR	k	100.00
16	Walter Reis GmbH & Co KG, Obernburg, Germany [1]	EUR	k	100.00
17	WR Vermögensverwaltungs GmbH, Obernburg, Germany	EUR	k	100.00
18	RoboCeption GmbH, Munich, Germany	EUR	b	26.74
19	IWK Unterstützungseinrichtung GmbH, Karlsruhe, Germany	EUR	nk	100.00
20	KUKA Unterstützungskasse GmbH, Augsburg, Germany	EUR	nk	100.00
21	Schmidt Maschinentechnik GmbH i.L., Niederstotzingen, Germany	EUR	nk	100.00
Other Europe				
22	Easy Conveyors B.V., Zaltbommel, Netherlands	EUR	k	100.00
23	KUKA Automation ČR s.r.o., Chomutov, Czech Republic	CZK	k	100.00
24	KUKA Automatisering + Robots N.V., Houthalen, Belgium	EUR	k	100.00
25	KUKA AUTOMATISME + ROBOTIQUE S.A.S., Villebon-sur-Yvette, France	EUR	k	100.00
26	KUKA AUTOMATIZARE ROMANIA S.R.L., Sibiu, Romania	RON	k	100.00
27	KUKA CEE GmbH, Steyregg, Austria	EUR	k	100.00
28	KUKA Hungaria Kft., Taksony, Hungary	EUR	k	100.00
29	KUKA Iberia, S.A.U., Vilanova i la Geltrú, Spain	EUR	k	100.00
30	KUKA Industries Italia srl i.L., Bellusco, Italy	EUR	k	100.00
31	KUKA Nordic AB, Västra Frölunda, Sweden	SEK	k	100.00
32	KUKA Roboter Italia S.p.A., Rivoli, Italy	EUR	k	100.00
33	KUKA Robotics Ireland Ltd, Dundalk, Ireland	GBP	k	100.00
34	KUKA Robotics UK Limited, Wednesbury, UK	GBP	k	100.00
35	KUKA Russia OOO, Moscow, Russia	RUB	k	100.00
36	KUKA S-Base s.r.o. i.L., Roznov p.R., Czech Republic	CZK	k	100.00
37	KUKA Slovakia s.r.o., Dubnica nad Váhom, Slovakia	EUR	k	100.00
38	KUKA Systems Aerospace SAS, Bordeaux-Merignac, France	EUR	k	100.00
39	KUKA Systems France S.A., Montigny, France	EUR	k	99.99
40	KUKA Systems UK Limited, Halesowen, UK	GBP	k	100.00
41	Reis Espana S.L. i.L., Esplugues de Llobregat (Barcelona), Spain	EUR	k	100.00
42	Reis SCI i.L., Pontault Combault, France	EUR	k	100.00

Name and registered office of the company		Currency	Method of consolidation	Share of equity in %
43	Swisslog (UK) Ltd., Redditch, UK	GBP	k	100.00
44	Swisslog AB, Partille, Sweden	SEK	k	100.00
45	Swisslog Accalon AB, Boxholm, Sweden	SEK	k	100.00
46	Swisslog AG, Buchs AG, Switzerland	CHF	k	100.00
47	Swisslog AS, Oslo, Norway	NOK	k	100.00
48	Swisslog B.V., Culemborg, Netherlands	EUR	k	100.00
49	Swisslog Evomatic GmbH, Sipbachzell, Austria	EUR	k	100.00
50	Swisslog France SAS, Suresnes, France	EUR	k	100.00
51	Swisslog Healthcare AG, Buchs AG, Switzerland	CHF	k	100.00
52	Swisslog Healthcare Holding AG, Buchs AG, Switzerland	CHF	k	100.00
53	Swisslog Healthcare Italy SpA, Cuneo, Italy	EUR	k	100.00
54	Swisslog Holding AG, Buchs AG, Switzerland	CHF	k	100.00
55	Swisslog Italia S.r.l., Milan, Maranello, Italy	EUR	k	100.00
56	Swisslog N.V., Wilrijk, Belgium	EUR	k	100.00
57	Swisslog Healthcare Netherlands B.V., Apeldoorn, Netherlands	EUR	k	100.00
58	Visual Components Oy, Espoo, Finland	EUR	k	100.00
North America				
59	KUKA Aerospace Holdings LLC, Sterling Heights, Michigan, USA	USD	k	100.00
60	KUKA Assembly and Test Corporation, Saginaw, Michigan, USA	USD	k	100.00
61	KUKA de Mexico S. de R.L.de C.V., Mexico City, Mexico	MXN	k	100.00
62	KUKA Recursos S. de R.L. de C.V., Toluca, Mexico	MXN	k	100.00
63	KUKA Robotics Canada Ltd., Mississauga, Canada	CAD	k	100.00
64	KUKA Robotics Corp., Shelby Township, Michigan, USA	USD	k	100.00
65	KUKA Systems de Mexico S. de R.L. de C.V., Toluca, Mexico	MXN	k	100.00
66	KUKA Systems North America LLC, Sterling Heights, Michigan, USA	USD	k	100.00
67	KUKA Toledo Production Operations, LLC, Toledo, Ohio, USA[2]	USD	k	100.00
68	KUKA U.S. Holdings Company LLC, Sterling Heights, Michigan, USA	USD	k	100.00
69	Reis Robotics USA Inc., Carpentersville, USA	USD	k	100.00
70	Swisslog Logistics, Inc., Newport News, USA	USD	k	100.00
71	Swisslog USA Inc., Dover, Delaware, USA	USD	k	100.00
72	Translogic CORPORATION, Dover, Delaware, USA	USD	k	100.00
73	Translogic Ltd. (Canada), Mississauga, Ontario, Canada	CAD	k	100.00
74	Visual Components North America Corporation, Lake Orion, Michigan, USA	USD	k	100.00
75	Pipeline Health Holdings LLC, San Francisco, USA	USD	at	25.00
Latin America				
76	KUKA Roboter do Brasil Ltda., São Bernando do Campo/São Paulo, Brazil	BRL	k	100.00
77	KUKA Systems do Brasil Ltda., São Bernardo do Campo SP, Brazil	BRL	k	100.00
Asia/Australia				
78	KUKA (Thailand) Co., Ltd., Bangkok, Thailand	THB	k	100.00
79	KUKA Automation Equipment (Shanghai) Co., Ltd., Shanghai, China	CNY	k	100.00
80	KUKA Automation Taiwan Ltd., Taipei, Taiwan, Taiwan	TWD	k	100.00
81	KUKA India Pvt. Ltd., Haryana, India	INR	k	100.00
82	KUKA Industries Automation (China) Co., Ltd., Kunshan, China	CNY	k	100.00
83	KUKA Industries Singapore Pte. Ltd., Singapore, Singapore	SGD	k	100.00
84	KUKA Japan K.K., Yokohama, Japan	JPY	k	100.00
85	KUKA Robot Automation (Malaysia) Sdn BhD, Puchong, Selangor, Malaysia	MYR	k	100.00
86	KUKA Robotics (China) Co. Ltd., Shanghai, China	CNY	k	50.00
87	KUKA Robotics Australia Pty. Ltd., Port Melbourne, Victoria, Australia	AUD	k	100.00

Name and registered office of the company		Currency	Method of consolidation	Share of equity in %
88	KUKA Robotics Guangdong Co., Ltd., Foshan, Shunde, China	CNY	k	100.00
89	KUKA Robotics Korea Co. Ltd., Ansan, South Korea	KRW	k	100.00
90	KUKA Robotics Manufacturing China Co. Ltd., Shanghai City, China	CNY	k	50.00
91	KUKA Systems (China) Co. Ltd., Shanghai, China	CNY	k	100.00
92	KUKA Systems (India) Pvt. Ltd., Maharashtra, Pune, India	INR	k	100.00
93	KUKA Vietnam Co., Ltd., Hanoi, Vietnam	VND	k	100.00
94	Swisslog Asia Ltd., Hong Kong, China	HKD	k	100.00
95	Swisslog Australia Pty Ltd., Sydney, Australia	AUD	k	100.00
96	Swisslog Healthcare Asia Pacific Pte. Ltd., Singapore, Singapore	SGD	k	100.00
97	Swisslog Healthcare Korea Co., Ltd., Bucheon si, Gyeonggi-do, South Korea	KRW	k	100.00
98	Swisslog Healthcare Shanghai Co., Ltd., Shanghai, China	CNY	k	50.00
99	Swisslog Healthcare Trading MEA LLC., Emirate of Dubai, United Arab Emirates	AED	k	49.00
100	Swisslog Malaysia Sdn Bhd, Selangor, Malaysia	MYR	k	100.00
101	Swisslog Middle East LLC, Dubai, United Arab Emirates	AED	k	49.00
102	Swisslog Singapore Pte Ltd., Singapore, Singapore	SGD	k	100.00
103	Shanghai Swisslog Healthcare Technology Co., Ltd., Shanghai, FTZ, China	CNY	nk	100.00
104	Shanghai Swisslog Logistics Automation Co., Ltd., Shanghai, FTZ, China	CNY	nk	100.00
105	Chang'an Reis (Chongqing) Robotic Intelligent Equipment Co. Ltd, Chongqing, China	CNY	at	50.00
106	Guangdong Swisslog Technology Co., Ltd., Shunde, China	CNY	at	50.00
107	Swisslog (Shanghai) Co. Ltd., Shanghai, China	CNY	at	100.00
108	Yawei Reis Robot Manufacturing (Jiangsu) Co. Ltd., Yangzhou City, China	CNY	at	49.00

[1] Companies that have made use of the exemption pursuant to section 264 para. 3 or section 264b of the German Commercial Code (HGB)

[2] Principal place of business

Method of consolidation

k Fully consolidated companies

nk Non-consolidated companies

at Financial asset accounted for by the equity method

b Participating interest

Responsibility statement

“To the best of our knowledge, and in accordance with the applicable reporting principles, the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and profit or loss of the Group, and the management report of the Group includes a fair review of the development and performance of the business and the position of the Group, together with a description of the principal opportunities and risks associated with the expected development of the Group.”

Augsburg, March 3, 2020

KUKA Aktiengesellschaft
The Executive Board

Peter Mohnen Andreas Pabst

Independent auditor’s report

To KUKA Aktiengesellschaft, Augsburg

Report on the Audit of the Consolidated Financial Statements and of the Group Management Report

Opinions

We have audited the consolidated financial statements of KUKA AG, Augsburg and its subsidiaries (the Group), which comprise the consolidated statement of financial position as at 31 December 2019, the consolidated statement of profit or loss, the consolidated statement of comprehensive income, the consolidated statement of cash flows and the consolidated statement of changes in equity for the financial year from January 1, 2019 to December 31, 2019, and notes to the consolidated financial statements, including a summary of significant accounting policies. In addition, we have audited the combined management report of KUKA AG and of the KUKA Group (“group management report”) for the financial year from January 1, to December 31, 2019. In accordance with German legal requirements, we have not audited the content of those components of the group management report specified in the “Other Information” section of our auditor’s report.

In our opinion, on the basis of the knowledge obtained in the audit,

› the accompanying consolidated financial statements comply, in all material respects, with the IFRS as adopted by the EU, and the additional requirements of German commercial law pursuant to Section 315e(1) HGB and, in compliance with these requirements, give a true and fair view of the assets, liabilities, and financial position of the Group as at December 31, 2019, and of its financial performance for the financial year from January 1, 2019 to December 31, 2019, and
› the accompanying group management report as a whole provides an appropriate view of the Group’s position. In all material respects, this group management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Our opinion on the group management report does not cover the content of those components of the group management report specified in the “Other Information” section of the auditor’s report.

Pursuant to Section 322 (3) sentence 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the group management report.

Basis for the Opinions

We conducted our audit of the consolidated financial statements and of the group management report in accordance with Section 317 HGB and the EU Audit Regulation No 537/2014 (referred to subsequently as “EU Audit Regulation”) and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). We performed the audit of the consolidated financial statements in supplementary compliance with the International Standards on Auditing (ISAs). Our responsibilities under those requirements, principles and standards are further described in the “Auditor’s Responsibilities for the Audit of the Consolidated Financial Statements and of the Group Management Report” section of our auditor’s report. We are independent of the group entities in accordance with the requirements of European law and German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. In addition, in accordance with Article 10 (2)(f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Article 5 (1) of the EU Audit Regulation. We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinions on the consolidated financial statements and on the group management report.

Key Audit Matters in the Audit of the Consolidated Financial Statements

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements for the financial year from January 1, to December 31, 2019. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, we do not provide a separate opinion on these matters.

Recognition of deferred tax assets
Concerning the accounting principles applied and also the deferred tax assets that are recognized, please refer to the notes to the consolidated financial statements “General disclosures, accounting and measurement principles” as well as Section 5 in the notes to the consolidated financial statements.

The financial statement risk
Deferred tax assets totaling EUR 86.7 million are reported in the consolidated financial statements of KUKA AG as at December 31, 2019.

For the accounting of the deferred tax assets, KUKA AG assesses to what extent the existing deferred tax assets can be used in the subsequent reporting periods. The realization of these claims requires sufficient taxable profit to be generated in the future. If there are legitimate doubts about the future ability to use the deferred tax assets that have been determined, deferred tax assets are not recognized and deferred tax assets that have already been formed are written down.

The accounting for the deferred tax assets is highly dependent on the assessment and the assumptions of the management relating to the operational development of the companies as well as the Group's tax planning and is therefore subject to considerable uncertainty. Furthermore, the realization depends on the respective fiscal environment.

There is the financial statement risk that the assessment by KUKA is not appropriate and the deferred tax assets that are recognized are not recoverable.

Our audit approach

We consulted our tax specialists in the audit in order to analyze the tax issues. To begin with, we subjected the temporary differences between the IFRS carrying amounts and the carrying amounts in the tax accounts to a critical examination. Furthermore, we reconciled the loss carryforwards for the tax assessment notices and the tax calculations for the current financial year and also evaluated the off-balance sheet corrections.

We assessed the recoverability of the deferred tax assets on the basis of the internal forecasts of the future taxable income situation drawn up by the company and subjected the underlying assumptions to a critical review. In this respect, we reconciled in particular the planning for the future taxable profit with the planning drawn up by the Executive Board and approved by the Supervisory Board and reviewed it for consistency. The appropriateness of the planning used was assessed using tax planning calculations. We furthermore satisfied ourselves of the quality of the company's previous forecasting by comparing plans for earlier financial years with the results that were later actually achieved and analyzed any deviations.

Our observations

The assumptions underlying the recognition of the deferred tax assets are appropriate as a whole.

Impairment of goodwill

Concerning the accounting principles applied and also the assumptions, please refer to the notes to the consolidated financial statements "General disclosures, accounting and measurement principles" as well as Section 7 in the notes to the consolidated financial statements.

The financial statement risk

Goodwill amounted to EUR 315.3 million (9.2% of the total assets) as at December 31, 2019.

The impairment of the goodwill is reviewed every year at the level of the cash-generating units. To this end, the carrying amount is compared with the recoverable amount of the relevant cash-generating unit. If the carrying amount is higher than the recoverable amount, a need for impairment arises. The recoverable amount is the higher of the fair value less costs of disposal and the value in use of the cash-generating unit. The reporting date for the impairment test is December 31, 2019.

The impairment test of the goodwill is complex and based on a series of discretionary assumptions. These include the expected business and earnings performance of the business segments for the next five years, the long-term growth rates that are assumed, and the discount rate that is used.

The company did not identify any need for impairment as a result of the impairment tests that were conducted.

There is the financial statement risk that an impairment existing on the reporting date has not been recognized at the appropriate amount. There is furthermore the risk that the related disclosures are not appropriate.

Our audit approach

We consulted our assessment specialists and assessed the appropriateness of the material assumptions as well as the calculation method used by the company. To this end, we discussed the expected business and earnings performance and the long-term growth rates that are assumed (using external forecasts if available) with the responsible planning staff. Furthermore, we conducted reconciliations with other internally available forecasts, e.g. for tax purposes, with external forecasts (if available), and with the planning drawn up by the Executive Board and approved by the Supervisory Board.

We furthermore satisfied ourselves of the quality of the company's previous forecasting by comparing plans for earlier financial years with the results that were actually achieved and analyzed any deviations. As changes to the discount rate can have a material impact on the results of the impairment test, we compared the assumptions and parameters underlying the discount rate, especially the risk-free interest rate, the market risk premium, and the beta factor, with our own assumptions and publicly available data.

In order to ensure that the measurement model used is mathematically correct, we verified the company's calculations in a risk-oriented way on the basis of selected elements.

In order to take the existing forecasting uncertainty for the impairment test into account, we examined possible changes of the discount rate on the recoverable amount (sensitivity analysis) by calculating alternative scenarios and comparing them with the company's values.

Finally, we assessed whether the disclosures on the impairment of the goodwill are appropriate. This also included an assessment of the appropriateness of the disclosures pursuant to IAS 36.134(f) on sensitivities in the event of a reasonably possible change in key assumptions underlying the evaluation.

Our observations

The calculation method forming the basis of the impairment test of the goodwill is appropriate and consistent with the measurement principles to be applied.

The company's assumptions and parameters underlying the assessment are appropriate.

The related disclosures are appropriate.

Periodic revenue recognition of long-term construction contracts

Concerning the accounting principles applied and also the relevant amounts, please refer to the notes to the consolidated financial statements "General disclosures, accounting and measurement principles" as well as Sections 1 and 14 in the notes to the consolidated financial statements.

The financial statement risk

In the financial year, Group revenue totaled EUR 3,192.6 million, of which EUR 1,626.9 million was realized over time, primarily resulting from long-term construction contracts.

KUKA AG recognizes revenue when (or as) the entity satisfies a performance obligation by transferring a promised good or service to a customer. An asset is transferred when (or as) the customer obtains control of that asset. In accordance with the transfer of control, sales revenue has to be recognized either at a specific time or over a period in the amount to which KUKA AG is expected to be entitled.

On the basis of the presence of the following criteria KUKA AG determined that the performance obligation for construction contracts as previously is fulfilled over a period and the revenue is therefore recognized over a time period:

- An asset is created or improved as a result of the Group's performance and the customer obtains control of the asset while it is being created or improved;
- An asset that has no alternative potential for use by the Group is created as a result of the Group's performance and the Group has a legal right to payment for the services already performed, including an appropriate margin.

The Group's key markets are in Europe, the US, and Asia. The worldwide operations of the Group companies mean that different agreements containing some complex contractual regulations are made with customers.

Because a variety of contractual agreements are used in the different markets and as a result of the discretion that can be applied when assessing the criteria for determining the time that control of an asset is transferred, the financial statement risk arises that the revenue is incorrectly identified on the reporting date.

Our audit approach

Based on the understanding we gained of the process, we assessed the design, establishment and functioning of internal controls that were identified, in particular concerning monitoring costs, risks and planned revenue of the individual orders.

As a result of the initial application of IFRS 15, a key focus areas of our audit was an assessment of the requirements of the Group-wide accounting policy. Based on the representative selection of spot checks on contracts, we determined whether the accounting policy is properly implemented. Furthermore, by comparing the actual costs with the original costing for orders that had already been completed and for orders still in progress, we were able to assess the general quality of the planning.

Using contracts selected on a risk-oriented basis, we assessed the appropriateness of the significant judgments, such as the availability of the alternative potential use of the asset by the company, the presence of a legally enforceable right to payment including a reasonable margin for services already performed, the selection of the measure of progress, and the estimate of the degree of the progress achieved in the service. To do this we discussed construction contracts, including existing risks (e. g. legal risks or warranty risks) with the management of the segments and the project management and analyzed order costing.

Building on the knowledge that we had previously gained, we assessed whether the respective degree of completion achieved was appropriately identified as well as the recognition in the balance sheet and in the statement of profit and loss.

Our observations

The approach used by KUKA for revenue recognition over time from construction contracts is appropriate. The assumptions underlying the accounting is appropriate.

Other Information

Management and the Supervisory Board are / is responsible for the other information. The other information comprises the following components of the management report, whose content was not audited:

- the non-financial statement, the management report is referring to
- the corporate governance statement which prospectively will be presented to us subsequent to the auditors' report and the management report is referring to, and
- information extraneous to management reports and marked as unaudited.

The other information also includes the remaining parts of the annual report.

The other information does not include the annual financial statements, the management report information audited for content and our auditor's report thereon.

Our opinions on the annual financial statements and on the management report do not cover the other information, and consequently we do not express an opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in so doing, to consider whether the other information

- is materially inconsistent with the annual financial statements, with the management report information audited for content or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

Responsibilities of Management and the Supervisory Board for the Consolidated Financial Statements and the Group Management Report

Management is responsible for the preparation of the consolidated financial statements that comply, in all material respects, with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Section 315e (1) HGB and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position, and financial performance of the Group. In addition, management is responsible for such internal control as they have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, management is responsible for the preparation of the group management report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, management is responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a group management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the group management report.

The supervisory board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the group management report.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and of the Group Management Report

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the group management report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our opinions on the consolidated financial statements and on the group management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Section 317 HGB and the EU Audit Regulation and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) and supplementary compliance with the ISAs will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this group management report.

We exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements and of the group management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinions. The risk that material misstatements are not detected is higher for breaches than for inaccuracies, as breaches may include fraudulent collusion, falsifications, intentional omissions, misleading statements, and the suspension of internal controls.
- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the group management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of these systems.
- Evaluate the appropriateness of accounting policies used by management and the reasonableness of estimates made by management and related disclosures.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the group management report or, if such disclosures are inadequate, to modify our respective opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with IFRS as adopted by the EU and the additional requirements of German commercial law pursuant to Section 315e(1) HGB.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express opinions on the consolidated financial statements and on the group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our opinions.
- Evaluate the consistency of the group management report with the consolidated financial statements, its conformity with [German] law, and the view of the Group's position it provides.
- Perform audit procedures on the prospective information presented by management in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by management as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with the relevant independence requirements, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, the related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter.

Other Legal and Regulatory Requirements

Further Information pursuant to Article 10 of the EU Audit Regulation

We were elected as group auditor at the annual general meeting on May 29, 2019. We were engaged by the Supervisory Board on November 29, 2019. We have been the group auditor of KUKA AG without interruption since financial year 2011.

We declare that the opinions expressed in this auditor's report are consistent with the additional report to the audit committee pursuant to Article 11 of the EU Audit Regulation (long-form audit report).

The fee for the auditing services of KPMG AG WPG related primarily to the audit of the consolidated financial statements and of the annual financial statements of KUKA AG as well as various audits of the annual financial statements of its subsidiaries, including legal contract extensions and audit focus areas agreed with the Supervisory Board. A review of the semi-annual report was additionally integrated in the audit.

German Public Auditor Responsible for the Engagement

The auditor responsible for the engagement is Hans Querfurth.

Augsburg, March 11, 2020

KPMG AG
Wirtschaftsprüfungsgesellschaft

gez. Querfurth Wirtschaftsprüfer [German Public Auditor]	gez. Specht Wirtschaftsprüfer [German Public Auditor]

Glossary

ABS
Asset-backed securities. Asset-backed securities are bonds or notes that are collateralized with assets (usually receivables). Receivables are purchased within the framework of an ABS program.

AC (At Amortized Cost)
Measurement at amortized cost

AGV
Automated guided vehicle

At Equity
Method of accounting for investments in and business relationships with associated companies or joint ventures in the financial statements.

Capital employed
Capital employed includes working capital as well as intangible assets and tangible fixed assets. Capital employed therefore represents the difference between operating assets and non-interest-bearing outside capital.

Cash earnings
Cash earnings are a measurement for the inflow or outflow of cash from the operating profits (EBIT). They are the resulting balance from operating profits, interest, taxes, depreciation as well as other non-payment-related expenses and income.

Corporate compliance
Corporate compliance means that all employees conform to the company's legislative framework and internal guidelines and do not contravene any applicable laws. Proactive risk minimization is also part of a company's compliance management system.

Corporate governance
Common international term for responsible corporate management and control that aims at creating long-term value.

Declaration of compliance
Declaration of the Executive Board and the Supervisory Board in accordance with section 161 of the German Corporation Act (AktG) regarding the implementation of the recommendations of the Government Commission in the German Corporate Governance Code.

Deferred taxes
Temporary differences between calculated taxes on the commercial and tax balance sheets designed to disclose the tax expense in line with the financial accounting income.

Derivatives
Financial instruments whose value is largely derived from a specified price and the price fluctuations/expectations of an underlying base value, e.g. exchange rates.

EBIT
Earnings before interest and taxes.

EBIT margin
EBIT in relation to sales revenues.

Employees
All figures for employees in the annual report are based on full time equivalent.

Equity ratio
Ratio of equity to total assets.

Earnings per share
Earnings per share are calculated on the basis of Group consolidated earnings after taxes and the average number of shares outstanding for the year.

Exposure
A key figure used to assess risk. This key figure includes all incoming payments in a 90-day period prior to the record date of the down payments, payments based on percentage of completion or compensation after acceptance of the work carried out. In addition, the key figure also comprises all customer payments made within 90 days and which have not yet been supplied with deliveries/services including the sum of unpaid invoices following delivery or service supplied to the customer, the POC receivables and any purchase commitments.

FLAC (Financial Liabilities Measured at Amortised Cost)
Financial liabilities measured at amortized cost.

Free cash flow
Cash flow from operating activities plus cash flow from investing activities. Free cash flow shows the extent of the funds generated by the company in the business year.

FVOCI
Financial instruments, measured at fair value through other comprehensive income.

FVtPL
Financial instruments, measured at fair value through profit or loss.

GCGC
German Corporate Governance Code: the German Government Commission's list of requirements for German companies (since 2002).

General industry
General industrial markets not including the automotive industry.

Gross margin
Gross margin is determined by dividing gross profit by sales, expressed as a percentage.

Gross profit
Gross profit on sales is defined as total sales minus cost of goods sold. Cost of goods sold includes all direct costs associated with sales revenues generated. Other costs, such as research and development, marketing and administration, are not included.

HGB
German Commercial Code.

IAS
International Accounting Standards.

IFRIC/SIC
International Financial Reporting Interpretation Committee – interpreter of the international financial reporting standards IAS and IFRS, formerly also SIC. IFRIC is the new name for the Standing Interpretations Committee adopted by the trustees of the IASC foundation in March 2002. SIC was created in 1997 to improve the application and worldwide comparability of financial reports prepared in accordance with International Accounting Standards (IAS). It outlines financial statement practices that may be subject to controversy.

IFRS
International Financial Reporting Standards: The IFRS ensure international comparability of consolidated financial statements and help guarantee a higher degree of transparency.

IIoT
Industrial Internet of Things: Networking of machines and technologies in industrial and manufacturing environments. Through connection of the IT world to physical systems, industrial processes and sequences can be made more efficient and flexible, and new business models can be developed.

Market capitalization
The market value of a company listed on the stock exchange. This is calculated by taking the share price and multiplying it by the number of shares outstanding.

Net liquidity/Net debt
Net liquidity/net debt is a financial control parameter consisting of cash, cash equivalents and securities minus current and non-current financial liabilities.

Percentage of completion method (POC)
Accounting method of revenue and profit recognition according to the stage of completion of an order. This method is used for customer-specific construction contracts.

R&D
Research and development.

Rating
Assessment of a company's creditworthiness (solvency) determined by a rating agency based on analyses of the company. The individual rating agencies use different assessment levels.

ROCE
Return on capital employed (ROCE) is the ratio of the operating profit/loss (EBIT) to the capital employed (see Capital employed). To calculate ROCE the capital employed is based on an average value.

Swisslog Group
Swisslog Group comprises Swisslog Holding AG and its subsidiaries.

Trade working capital
Trade working capital is defined as current assets minus current liabilities directly associated with everyday business operations; that is, inventories minus advance payments, trade receivables and receivables for manufacturing orders minus liabilities for trade receivables and manufacturing orders.

Volatility
Intensity of fluctuations in share prices and exchange rates or changes in prices for bulk goods compared to market developments.

WDS
Warehouse & Distribution Solutions.

Working capital
Working capital consists of the inventories, trade receivables, other receivables and assets, accrued items and the balance of receivables and payables from affiliated companies, as far as these are not allocated to financial transactions, minus other provisions, trade payables, other payables with the exception of liabilities similar to bonds and deferred income.

Financial calendar 2020

First quarter interim report	April 27, 2020
Annual General Meeting, Augsburg/Germany	June 19, 2020
Interim report to mid-year	August 5, 2020
Interim report for the first nine months	October 29, 2020

The annual report was published on March 26, 2020 and is available in German and English from KUKA Aktiengesellschaft Corporate Investor Relations department. In the event of doubt, the German version applies.

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Translation AMPLEXOR Digital GmbH, Augsburg/Germany

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