KUKA

Annual Report 2022

beyond automation

Key figures

in € millions	2021	2022	Change in %
Orders received	**3,565.3**	**4,459.5**	**25.1**
Sales revenues	**3,286.2**	**3,897.0**	**18.6**
Order backlog (Dec. 31)	**2,311.9**	**2,912.4**	**26.0**
EBIT	**61.8**	**118.4**	**91.6**
EBIT in % of sales	**1.9**	**3.0**	**110 Bp**
Earnings after taxes	**49.4**	**101.4**	**>100**
Financial position			
Free cash flow	100.4	-188.3	>-100
Capital expenditure	101.4	129,5	27.8
Employees (Dec. 31)[1]	14,128	15,064	6.6
Net assets and financial position			
Balance sheet total	3,709.1	3,955.9	6.7
Equity	1,354.6	1,500.4	10.8
in % of balance sheet total	36.5	37.9	140.6 Bp

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

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

KUKA at a glance

KUKA is a global automation corporation with sales of around 3.9 billion euro and roughly 15,000 employees. As one of the world's leading suppliers of intelligent automation solutions, KUKA offers customers everything they need from a single source: from robots and cells to fully automated systems and their networking in markets such as automotive, electronics, metal & plastic, consumer goods, e-commerce/retail and healthcare. The company has been firmly rooted at its headquarters in Augsburg for 125 years. This is where the KUKA success story began in 1898, when Johann Josef Keller and Jakob Knappich founded an acetylene plant for lighting. The telegram abbreviation from the initial letters of the company name "Keller und Knappich Augsburg" became the brand name KUKA, where tradition meets innovation. Today, KUKA plays a central role worldwide in the implementation and design of intelligent automation, digital networking of production, and modular and flexible manufacturing concepts. With its decades of experience in automation, process expertise and digital services, KUKA ensures its customers have an edge on the competition.

2022 key figures

Revenues	Orders received	Employees
€3.9 billion	€4.5 billion	15,064

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Foreword

Ladies and Gentlemen,
Dear Readers

This is the fifth time that I have had the privilege of contributing a foreword to our annual report, as CEO of KUKA AG. And I am particularly pleased that this year's report contains so much positive news. It is not without pride that we look at the intensive team effort of 15,000 KUKA employees around the world: we turned 2022 into a record year in several areas at once. Never before has KUKA had a sales volume of almost four billion euros. The fact that we were able to book new orders worth around four and a half billion euros is a first and is absolutely remarkable. And that's not all – we were able to significantly improve our profitability in the past fiscal year. This is clearly reflected in the result achieved.

For me, it is essential to look not only at our excellent figures, but also at our economic performance in the context of the – very difficult – global environment. I am deeply moved by Russia's criminal war of aggression on Ukraine and its people in violation of international law. The global economy is affected by a wide variety of trouble spots and is anything but on course for record results. We have also felt these factors. The war on European soil has been indirectly associated with difficulties worldwide in procuring intermediate products and raw materials. High inflation also drove up our purchase prices around the globe. The energy crisis exacerbated these effects. In many places, the shortage of skilled workers is holding us back. Our highly respected and high-performing in-house training program helps us to recruit excellently trained young people into the KUKA team. And last but not least, relentless climate change places additional responsibility on all of us. More than ever before. How we can make ourselves even more sustainable ecologically, economically and socially has now become an integral part of our Group's planning, and rightly so.

It would therefore be easy to simply point to the difficult framework conditions in view of all the challenges mentioned. But that is not the KUKA way. Instead, our company has been driven for 125 years by an irrepressible spirit: the unconditional conviction of people to find solutions, particularly in difficult situations. Passion, fighting spirit and solution orientation characterize the KUKA team around the globe. That is the KUKA spirit! That is precisely what makes KUKA such a special company for me.

At the beginning of last year, for example, we learned that we would not receive even one tenth of the electronic chips needed for our products. It did not take long for an interdisciplinary team of purchasers, developers and other experts to find alternative solutions, reschedule products at short notice and find alternative procurement sources. Of course, this also cost us an extra amount in the high double-digit million euro range, but we were able to deliver – and we did deliver. I am very proud of that.

With our core service, intelligent automation, we are driving a global trend and are well positioned precisely where the need is greatest. With robots, with automated intralogistics and smart overall systems, with intelligent software tools and unbeatable service. At the same time, we cannot ignore the fact that we are in an extremely competitive market that demands faster and simpler solutions. New competitors are entering the race almost monthly. Such a positive financial year is certainly beneficial for us, especially after the difficult preceding years, but it does not give us carte blanche for future success. That is why it is important for us to constantly realign and position ourselves in such a way that we can achieve sustainable success in the medium and long term.

Alexander Tan
Chief Financial Officer and Controlling

Peter Mohnen
Chief Executive Officer

It helps that we have a globally diversified footprint. About one third of KUKA's global sales are generated in North America, and about one fifth in China – the world's largest and fastest-growing robotics market. Here we are on course for strong growth, but remain well balanced globally. In my view, this is of elementary importance in times like these when there is talk of disconnection and competing systems. KUKA has long since ceased to be a classic "German mechanical engineering company" that exports its goods around the world. We are successfully developing into a global company that thinks in global terms, but also cultivates and makes use of local strengths. "Think global, act local" is also one of our guiding principles. For me, it is more than just an empty phrase; it becomes tangible when we give our companies abroad more scope for decision-making, for example, or, as in China or the USA, develop individual solutions in close proximity to the customer. We distribute expertise and "Excellence Centers" in such a way that we reduce individual dependencies of specific markets and become unbeatable across the board.

Our ownership structure also changed in 2022. As announced the year before, Midea exercised the legal option of a squeeze-out and increased its holding of KUKA shares from 95 to 100 percent. We KUKAns liked seeing KUKA shares on the financial markets, and many employees were small shareholders. However, I welcome Midea's commitment in return to maintain KUKA as a strong, independent brand. Guarantees given in addition to this, such as the successive expansion of research and development investments at our home base in Augsburg, help us to enjoy healthy and sustainable growth worldwide.

After more than ten years on the Management Board of KUKA, I am looking forward to driving forward the future development of our company and continuing on our successful path together with KUKA employees.

Peter Mohnen

Sincerely, Peter Mohnen

Supervisory Board report

Dear Sir / Madam,

2022 was a highly successful fiscal year for KUKA. Orders received, sales and operating result (EBIT) reached record levels and exceeded expectations. Given the major challenges and uncertainties in 2022, first and foremost the geopolitical upheavals, the ongoing coronavirus pandemic and the tense situation in international supply chains, the results achieved are remarkable. It confirms once again that automation & robotics is a megatrend and a global field of the future; KUKA is ideally positioned here with its entire portfolio and know-how and continues to penetrate new markets and industries.

The year 2022 was also remarkable for KUKA from another aspect. The squeeze-out announced by the Midea Group in November 2021 and approved by the Annual General Meeting in May 2022 was completed in November 2022. As a result, KUKA was delisted from the stock exchange, so that KUKA is no longer a listed company today.

Fiscal 2022 was a very busy, but also satisfying, year for the Supervisory Board and its committees. Important projects were initiated and other projects were successfully completed. One important signal for our business partners, and especially KUKA's employees, was the early extension of the contracts of Management Board members Peter Mohnen (CEO) and Alexander Tan (CFO) until December 2025. This is a clear sign of continuity and confidence in the incumbent management and the trust-based cooperation between the Supervisory Board and the Management Board.

In the year under review, the Supervisory Board performed the duties incumbent upon it by law, the Articles of Association and the Rules of Procedure in full. The Supervisory Board and its committees monitored and advised the Management Board in its management of the company on the basis of regular and detailed reporting by the Management Board. Furthermore, there was an intensive exchange between the Chairman of the Supervisory Board and the Chairman of the Management Board as well as a regular exchange between the Chairs of the Audit Committee and the Strategy and Technology Committee and the members of the Management Board. In this way, the Supervisory Board was always informed about the business policy, corporate planning, corporate risks and situation of the company and the Group as a whole. Cooperation between the Supervisory Board and the Management Board was constructive.

The Supervisory Board performed its duties in plenary sessions, committee meetings, telephone and video conferences, and by means of circular resolutions.

The Supervisory Board has formed a total of five committees. These are (1) the Personnel Committee, (2) the Audit Committee, (3) the Strategy and Technology Committee, (4) the Nomination Committee and the (5) Mediation Committee. The committees perform essential specialized tasks and prepare decisions for the Supervisory Board. This contributes to the efficient work of the Supervisory Board.

At the time the report of the Supervisory Board was submitted, the Board was thus composed of the following members:

Shareholder side:	Dr. Yanmin (Andy) Gu (Chairman) Prof. Dr. Henning Kagermann Dr. Myriam Meyer Christoph Schell Wenxin (Marianna) Zhao Helmut Zodl
Employee side:	Angela Steinecker (Deputy Chairwoman) Wilfried Eberhardt Manfred Hüttenhofer Armin Kolb Carola Leitmeir 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.

Work with the auditors

The annual financial statements of KUKA Aktiengesellschaft as at December 31, 2022 and the consolidated financial statements as at December 31, 2022, as well as the consolidated management report for KUKA Aktiengesellschaft and KUKA Group, including the bookkeeping, were audited by auditors PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft, Frankfurt am Main ("PricewaterhouseCoopers"), which issued an unqualified audit opinion in each case on March 14, 2023.

The consolidated financial statements of KUKA Aktiengesellschaft were prepared in accordance with section 315e 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, PricewaterhouseCoopers, as per the resolution at the Annual General Meeting of May 17, 2022. 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.

Finally, the Audit Committee obtained the arm's length declaration of the auditors and monitored the auditors' independence.

As in previous years, focal points were agreed for the audit of the annual financial statements in fiscal 2022.

In a joint meeting with the auditors on March 20, 2023, the Audit Committee reviewed the annual financial statements of KUKA Aktiengesellschaft and the consolidated financial statements for fiscal 2022, taking into consideration the auditors' reports. The Management 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 28, 2023 and recommended that the Board approve KUKA Aktiengesellschaft's annual financial statements and KUKA Group's consolidated annual financial statements for 2022.

The full Supervisory Board reviewed the draft annual financial statements and the Management Board's recommendation on appropriation of net income on March 28, 2023. The auditors, PricewaterhouseCoopers, 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.

PricewaterhouseCoopers explained in detail the assets, liabilities, financial position and profit or loss of the company and the Group. The Board and the auditors jointly reviewed and discussed the financial statements and PricewaterhouseCoopers answered all questions posed by the Audit Committee. The audits of the KUKA Aktiengesellschaft and KUKA Group annual financial statements for 2022 were thus fully comprehensible.

Dependency report 2022

On March 28, 2023, the Supervisory Board dealt with the report on relationships with affiliated companies (dependency report) prepared by the Management Board pursuant to section 312 of the German Stock Corporation Act (AktG) for fiscal 2022. This report was reviewed by PricewaterhouseCoopers in its role as auditor for fiscal 2022. Following preparatory discussion by the Audit Committee, the Supervisory Board conducted a further review. All reviews confirmed the Management Board's final declaration that, with regard to the business relationships of KUKA Group with Midea companies in the 2022 fiscal year, appropriate compensation was received and KUKA companies did not suffer any disadvantages therefrom. The audit opinion on the dependency report for fiscal 2022 reads verbatim as follows:

Audit results and audit opinion

In accordance with our engagement, we have audited the report of the Executive Board pursuant to § 312 AktG on relations with affiliated companies pursuant to § 313 AktG for the financial year 2022. As the final result of our audit did not give rise to any objections, we issue the following auditor's report in accordance with section 313 (3) sentence 1 AktG:

Based on our audit and assessment in accordance with professional standards, we confirm that

1. the actual information in the report is correct,
2. in the legal transactions listed in the report, the company's performance was not unreasonably high or disadvantages were compensated,
3. there are no circumstances that would justify a materially different assessment of the measures listed in the report than that made by the Executive Board.

Munich, March 14, 2023

PricewaterhouseCoopers GmbH
Wirtschaftsprüfungsgesellschaft

Adoption of 2022 financial statements

After completing its own review of the annual financial statements for 2022 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 28, 2023. 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 Management 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 28, 2023, the Supervisory Board therefore approved KUKA Aktiengesellschaft's annual financial statements for fiscal 2022 as prepared by the Management Board. The annual financial statements are thereby adopted. The Supervisory Board also approved KUKA Aktiengesellschaft's consolidated financial statements for the 2022 fiscal year as prepared by the Management Board.

Thanks to the staff

The Supervisory Board would like to thank all KUKA employees for their great commitment and hard work. We achieved a lot in fiscal 2022 and can be proud of our collective success. This success should be an incentive and motivation for all of us not to let up and to continue to give our best with full commitment to KUKA.

The Supervisory Board once again extends its thanks to the members of the Management Board, the CEOs of the Group companies and the employee representatives.

Augsburg, March 28, 2023
The Supervisory Board

Dr. Yanmin (Andy) Gu
Chairman

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.

The global technology corporation offers its customers a full range of products and services from a single source: from the core component – such as robots, automated guided vehicles (AGVs) and other automation components – 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.

KUKA focuses on its customers and therefore divides its operating activities into the following five segments: Systems, Robotics, Swisslog, Swisslog Healthcare and China. The holding functions are pooled in the Corporate Functions segment, which mainly comprises KUKA AG.

Systems division

The Systems portfolio covers the entire value chain of a system: from individual system components, tools and fixtures to complete turnkey systems. From traditional body-in-white production in the automotive industry, through battery production plants in the electromobility sector to initial non-automotive projects: the goal is the efficient design of production processes by means of adaptable, modular and automated manufacturing and logistics processes. Systems works together with its customers on flexible, scalable concepts and solutions for the factory of tomorrow. As an automation specialist for hardware and software solutions, Systems provides impetus for the digital factory.

Markets in Germany and elsewhere in Europe are served from the headquarters in 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. 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 supplied by the Robotics division: industrial, collaborative and mobile robots – together with robot controllers, software and digital services for the Industrial Internet of Things. The broad product portfolio – ranging from traditional 6-axis robots to DELTA and SCARA robots – covers payload ranges from three to 1,300 kilograms. In addition, the Robotics portfolio includes robot-based, modular manufacturing cells for a wide range of applications. This enables KUKA to meet the various requirements of its customers optimally. Robotics also offers comprehensive 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. The trend is also towards robots that are simple to program, flexible to deploy and easily integrated and networked. Enhanced with mobility and autonomous navigation, robots are being transformed into flexible production assistants that are becoming more and more intelligent.

KUKA's new products and technologies open up additional markets and create new applications for robot-based automation. Robots will play a 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, mitigate the effects of demographic change on the labor market.

Swisslog division

With its Swisslog division, KUKA is tapping the growth markets of e-commerce/retail andconsumer goods in the field of intralogistics. Based in Buchs (Aarau), Switzerland,Swisslog serves customers in over 50 countries worldwide. The division implements integrated automation solutions for forward-looking warehouses and distribution centers. As a general contractor, Swisslog offers complete turnkey solutions, from planning through to implementation and service, employing data-driven and robot-based automation in particular. Swisslog offers smart technologies, innovative software and adapted support services to improve the long-term competitiveness of its customers in the logistics sector. 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 free up more time for patient care. At the same time, the use of automation solutions can reduce 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 automated solutions for the healthcare sector are developed, offered and marketed in China. Industrial robots are manufactured at the site in Shunde and sold on the Chinese market. Furthermore, new robot models, such as the SCARA and DELTA robots, have been developed in China.

Markets, trends and competitive positions

Megatrends drive automation in the medium and long term

Megatrends such as digitalization, the customization of products, demographic changes, and also greater regionalization due to global uncertainties necessitate increasingly flexible and at the same time more efficient solutions in production and intralogistics environments. These developments will continue to intensify, based on the experience of recent years. This demonstrates the importance of new approaches and business models that enable customers to adapt their processes flexibly to rapidly changing market requirements.

Cyclical growth in a volatile world

Automation has traditionally been a complex task, from programming through to commissioning. However, the big picture in the world of production has changed in recent years – the trend today is to lower the barriers to entry for automation by simplifying installation, deployment and operation, improving software and safety functions, and reducing costs. This leads to increased productivity and flexibility. Trends in technology, such as digitalization, machine learning and artificial intelligence, are accelerating these developments. The focal point of the factory of the future is the human worker, with the robot as the decisive component.

Already today, as the world's largest robotics market, China's influence on the global automation market is becoming increasingly apparent. Chinese players are not only expanding their domestic market share, but also occupying premium segments with standard technology at low prices.

KUKA is one of the leading automation companies in various industries and regions in Europe, North America and China. In recent years, KUKA has strengthened its presence in China and invested in establishing a local foothold in order to address the specific requirements of Chinese customers and accelerate the time to market.

Robotics and automation solutions are in greater demand to compensate for staff shortages, reduce personnel costs, and promote efficiency and flexible adaptation to changing market needs and dynamics. Furthermore, the increased reshoring trend with the goal of improving the resilience of supply chain systems is also expected to continue boosting demand.

Corporate strategy

One of KUKA's core tasks is acting as a partner to support our customers in their automation and digitalization activities. In a rapidly changing environment characterized by global megatrends and ever-increasing competition, the key to future growth lies in understanding the specific requirements of our customers in different industries and regions in order to create unique added value for them. In doing so, we always remain focused on current developments and trends in our core industries. From easy-to-use, flexible automation to mobile, data-driven and scalable solutions, we offer answers to tomorrow's needs today.

With our strategy, we are focusing on global trends and pursuing a clear goal: to be the most competitive company for robot-based automation. In the long term, KUKA is focusing on four key areas:

1. KUKA is the first choice for intelligent automation
KUKA's long-term goal is to create products, services and solutions along the entire value chain and thus offer a competitive portfolio with clear unique selling points. Additionally, KUKA is working on an all-round package and expanding its digital business.

2. KUKA offers 125 years of pioneering spirit
In the future, the company aims to become a technology trend-setter for mass markets with shorter development cycles and a leading brand in robot-based automation. New market segments are to be gained by expanding experience and capabilities.

3. Together – worldwide
KUKA leverages its global knowledge of local market needs and strengthens the regions that drive the global road map and platform. The goal is to be successful in Asia, Europe, and North and South America. This requires flexible, stable and adaptable supply chains that run as independently as possible even in times of crisis.

4. From people, for people
KUKA creates an environment for this in which its employees can grow and develop professionally with the goal of becoming the most attractive company in the industry.

Business expansion: new markets, software & services

KUKA is continuously diversifying its business activities into high-growth, profitable business segments

KUKA concentrates on markets that are primarily characterized by high growth and profit potential and on regional growth opportunities, especially in fast-growing Asian countries. While KUKA has benefited greatly in the past from its pioneering role in automotive automation, future potential is increasingly emerging in areas outside the automotive sector and in the Chinese market:

Automotive

The automotive industry has always been of great importance to KUKA and remains a key pillar. It is a very important driver of technology and innovation and has been in a period of transition for some time. Established concepts and business models are undergoing major changes in terms of the way vehicles are developed, built, sold and used. KUKA will continue to grow around the world with its expanding portfolio of automotive and tier 1 customers and support them as a partner in automation, digitalization and electrification.

Electronics

The electronics industry is one of the most diverse sectors in the present-day industrial landscape. It includes the production of household electrical appliances, cutting-edge technologies such as semiconductors or solar cells, and industrial electronics. The most important submarket with the highest revenues is the 3C market (computers, communications and consumer electronics).

Metal & Plastics

Entry into robot-based automation in emerging markets often starts with arc welding applications. Robots are used not only for welding applications and machine handling, but also for a wide range of other tasks, for example polishing or processing, due to their comprehensive functionality. This also opens up new growth opportunities in saturated industries.

E-commerce & retail

Electronic commerce results in large quantities of varied goods being sent to consumers via goods distribution centers. Fast and correct order fulfillment 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 and 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.

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 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: 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 free up 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: Applications for KUKA robots range from X-ray imaging to radiation therapy, patient positioning and robot-based assistance systems for surgical procedures in operating rooms, or as a supporting partner in the field of rehabilitation.

Expansion of the software and digital services business

Production and intralogistics systems of the future will be digitally networked and increasingly smart. While value creation through hardware is declining, software is becoming more and more important. This goes hand in hand with the trend towards easy-to-use, intuitive automation with falling barriers to entry. By investing in value-added software and services and digitalizing its product range, KUKA is taking an important step toward ensuring profitable growth in the future.

At the same time, KUKA is using its digital customer portal to optimize its sales and service delivery methods with the goal of improving the customer experience across all regions. With its digital products, KUKA enables its customers to virtually simulate and digitally network machines and systems in the cloud, thereby increasing efficiency in various areas, such as predictive maintenance.

KUKA is laying another important foundation for the future by investing in SynQ warehouse management software from Swisslog and the KUKA AIVI master control system, which enables customers to respond flexibly and reliably to constantly changing production requirements.

Financial management system

Corporate management is based on the Group's strategy. The Group is managed on the basis of the key financial performance indicators derived from this. KUKA Group's financial targets are also KPIs that track the enterprise value of the company.

The most significant KPIs for KUKA Group are orders received, sales revenues, EBIT margin and free cash flow. The development of the financial targets is presented in the "Business performance" section and under "Financial position and performance". 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 represents the funds available to pay the claims of equity and debt capital providers.

These key performance indicators are published and are included as criteria 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 an 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	2018	2019	2020	2021	2022
Orders received	3,305.3	3,190.7	2,792.2	3,565.3	4,459.5
Revenues	3,242.1	3,192.6	2,573.5	3,286.2	3,897.0
EBIT margin	1.1%	1.5%	-4.4%	1.9%	3.0%
Free cash flow	-214.7	20.7	37.0	100.4	-188.3

Achievement of targets

In March 2022, KUKA published its targets for the full year 2022. KUKA expected both orders received and sales revenues to be slightly above the prior-year level, i. e. less than 10 percent. An increased EBIT margin was forecast. The margin was expected to be in the low single-digit range. Furthermore, earnings after taxes were expected to be above the prior-year level. Positive free cash flow was also forecast for 2022, although it was expected to be below the prior-year level. When publishing these targets, KUKA highlighted the uncertain general conditions, particularly in connection with the war of aggression on Ukraine and the ongoing global supply difficulties.

On October 26, 2022, the forecast was adjusted and published via an ad hoc announcement. Based on developments in fiscal 2022, the forecast for both orders received and sales revenues was raised from slightly above the prior-year figure (less than 10 percent) to above the prior-year figure (more than 10 percent). An EBIT margin of around 3.0 percent was forecast. The forecast for free cash flow has been reduced. A negative figure was anticipated, which could be in the low double-digit million range. The forecasts for sales revenues and earnings after taxes remained unchanged.

The forecasts published in March 2022 for orders received and sales revenues were exceeded. The Group generated orders received totaling €4,459.5 million (2021: €3,565.3 million), up 25.1 percent on the previous year. At €3,897.0 million (2021: €3,286.2 million), sales revenues were up 18.6 percent on the previous year.

The targets for EBIT and earnings after taxes were achieved. The EBIT margin rose to 3.0 percent after 1.9 percent in the previous year. The margin was thus in the positive low single-digit range. At €101.4 million, earnings after taxes were up on the previous year (2021: €49.4 million).

The free cash flow forecast was not achieved. At the end of fiscal 2022, free cash flow was -€188.3 million, and thus below the prior-year level (2021: €100.4 million). This development was due primarily to higher inventory levels linked to supply chain disruptions. For detailed information, please refer to the chapter "Financial position and performance".

2022 target values

in € millions	ACTUAL 2021	Target 2022 (March 2022 forecast)	Target 2022 (1st quarter forecast)	Target 2022 (2nd quarter forecast)	Ad hoc announcement/ Target 2022 (3rd quarter forecast)
Orders received	3,565.3	Slightly above prior-year level [1]	Slightly above prior-year level [1]	Slightly above prior-year level [1]	Above prior-year level [1]
Revenues	3,286.2	Slightly above prior-year level [1]	Slightly above prior-year level [1]	Slightly above prior-year level [1]	Above prior-year level [1]
EBIT margin	1.9%	rising [1]	rising [1]	rising [1]	rising/around 3.0% [1]
Earnings after taxes	49.4	above prior-year level [1]	above prior-year level [1]	above prior-year level [1]	above prior-year level [1]
Free cash flow	100.4	positive/below prior-year level [1]	positive/below prior-year level [1]	positive/below prior-year level [1]	negative/below prior-year level [1]

[1] Definitions:
slightly above/below prior-year level: absolute change compared to prior year < ±10%
above/below prior-year level: absolute change compared to prior year ≥ ±10%

Research and development

The area of research and development (R&D) is of crucial importance for the sustainable and long-term success of KUKA. Research and development expenditure amounted to €171.2 million in 2022, higher than the value for the previous year (2021: €159.6 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 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 42 patent and utility model applications and 221 patents and utility models were granted. The focus was on innovations in the area of simple and ergonomic use and low-cost robots, as well as on applications for 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.

Procurement

A robust supply chain with efficient purchasing and procurement management is essential for the successful execution of customer orders. The utmost priority is given here to ensuring the required quality at optimum cost and to on-time implementation. 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.

In the fiscal year 2022, the severely strained situation in the procurement markets with ongoing global supply bottlenecks, caused among other things by the war of aggression on Ukraine and the aftermath of the coronavirus pandemic, posed major challenges for the procurement departments worldwide. This applies particularly to the electronics sector. Under these conditions, the Robotics division’s close networking of manufacturing sites with the associated purchasing functions proved to be an important stabilizing factor. The aim is to establish stable and reliably functioning customer-supplier relationships. Due to its complex technological product portfolio, Robotics has increasingly turned to strategic partnerships in order to meet the high demands placed on its products and services.

At KUKA, the continuous monitoring of delivery reliability and delivery availability is a cross-departmental focus. The regular communication and close cooperation between the segments enable a high degree of flexibility throughout the company due to the ability to take decisions quickly in extreme situations. In the area of project business, optimizations with regard to structure, system and processes were investigated, evaluated and prepared for further implementation. The identified improvements will ensure that processes are even faster and more efficient in the future, which will have a positive impact on internal throughput times and external interfaces.

Economic report

Macroeconomic and industry conditions

Global uncertainties and persistent inflation are slowing global economic growth

The continuation of global economic recovery following the coronavirus pandemic has stalled since the beginning of the year. According to its November 2022 forecast, the Organization for Economic Cooperation and Development (OECD) expects global growth of 3.1%. The war of aggression on Ukraine has brought numerous challenges for the global economy. The main negative factors were the rise in raw material prices and the loss of consumer purchasing power due to persistently high inflation. Restrictive monetary policy and global uncertainties are also causing companies and consumers to hold back on investment and consumption. While many regions of the world have seen a return to "normality" with regard to the coronavirus pandemic, other countries such as China still face the challenges of heavier COVID-19 constraints.

Due to the regional proximity and the existing energy supply dependencies, the war of aggression on Ukraine is having an above-average impact on the economies of Europe. Despite the challenges, economic growth in the first half of the year exceeded expectations. Particularly in the second half of 2022, however, conditions started declining. For the full year 2022, the EU Commission expects growth of 3.3% in its Autumn Outlook. In 2023, only 0.3% is expected. The EU Commission expects an inflation rate of 9.3% in the EU in 2022. By comparison, inflation in the USA is expected to be 7.9%. In addition to energy prices, food prices and the prices of other raw materials are the main drivers of inflation. For the euro zone, inflation is expected to be 8.5%, representing a record high since introduction of the euro.

In its November outlook, the OECD expected economic growth of 1.8% in the USA for 2022 and a growth rate of 3.4% in China. This puts the USA well below the global average, while China is less strongly affected and slightly above average. For the German economy, the OECD expects growth of 1.6%. While growth this year was still relatively solid, expectations and the economic mood have already cooled significantly. The ifo Business Climate Index of the Institute of Economic Research (ifo) is regarded as an early indicator of economic development in Germany. In November 2022, the climate index was down to 86.3 points from 98.8 points at the high point of the year prior to the outbreak of war in Europe. Expectations declined even more sharply from 98.6 to 80.0 points in the same period.

Automotive markets with significant overcapacities, but strong growth in electric vehicles

In 2022, sales fell short of expectations in the European and U.S. markets according to the German Automotive Industry Association (VDA). In Europe approximately 4% fewer cars were registered in 2022 than in the previous year. The U.S. market even showed 8% lower sales. In comparison, Chinese sales volume increased significantly with its car market growing by 10%. The tax reduction on the majority of vehicles in the second half of the year proved to have a positive effect. The decline experienced in the first half of the year because of the lockdown had been be compensated by the end of the year. According to VDA, primarily a lack of intermediate production and raw materials, heavy price increases for energy and logistics, and the Russian war of aggression inhibited stronger growth on the international automotive market.

According to the Kraftfahrt-Bundesamt (KBA = Federal Motor Transport Authority), up to December 2022, a total of 2.4% fewer cars were registered in Germany than in the previous year. However, registration figures in November were 31.4% higher than in the same month last year. Following a weak summer, an upswing in registrations is therefore in progress. With a share of 45.8%, almost every second car registered was a vehicle with an alternative drive system.

According to an analysis by the Center of Automotive Management (CAM), electromobility continues to gain momentum in the three most important global core regions, with China becoming increasingly dominant as a sales market. In the first three quarters of 2022, sales of battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs) in China, Europe, and the U.S. increased 65% to a record 6.75 million cars. The increase in purely electric vehicles was slightly disproportionate to that of hybrids, with an increase of around 78%. The Chinese market already forms the core market and was responsible for almost two-thirds of BEV sales.

Reticent investment in mechanical and systems engineering due to weakening global economy

Experts from the German Engineering Association (VDMA) saw increasing reluctance to invest in mechanical and systems engineering. The machinery industry initially got off to a good start in 2022 and demand for capital goods remained high, so that order books continued to fill up. Companies were affected to varying degrees by supply bottlenecks. As a result, growth in the machinery industry was very uneven. However, growth prospects have dimmed in the course of the year. The main reasons for this headwind are the war of aggression on Ukraine and weakening growth in China, which is the result of the generally weak global economy and the restrictions relating to the zero-COVID policy. The high inflation and the tighter monetary policy of the central banks are also putting pressure on investment in Europe and the USA. As a result, in its November 2022 report "Maschinenbau Konjunktur International", the VDMA revised its June forecast from 4% to just 2% price-adjusted sales growth in the global mechanical engineering industry in 2022. The mood in industrial companies has cooled down. The J.P. Morgan and S&P Global Purchasing Managers' Index for the manufacturing sector was recently below the growth threshold value of 50 for several months.

In a baseline scenario for 2022, the forecasting institute Oxford Economics expects an adjusted decline of 1% in mechanical engineering sales in Germany. No real change is expected for China. The USA, on the other hand, is expected to achieve an increase of 2%. In particular, public investment programs such as the recent Infrastructure Investment and Jobs Act, Inflation Reduction Act and Chips Act fiscal packages are carrying the demand for machinery in the USA.

Flexible production and logistics solutions due to surge in digitalization with sharp increase in demand

In October 2022, the International Federation of Robotics (IFR) published the full-year figures for global robot sales in 2021. These figures indicated that around 517,000 robots were installed worldwide in 2021. This represents growth of 31% year on year, driven by the surge in digitalization resulting from the coronavirus pandemic in tandem with the strong recovery of the global economy. The main growth drivers were the electronics industry and the automotive industry. The electronics industry accounted for 26% of all installations. The share thus decreased by one percentage point compared with the previous year. The total number of installations in the electronics industry increased by 24%. The automotive industry accounted for 23% of all installations, representing an increase of two percentage points. The number of installations thus grew by 42% in 2021. The share accounted for by the metal industry increased by one percentage point to 12%. This corresponds to a growth of 45% in robot installations.

The Asia/Australia area accounts for by far the largest regional share of the market, with 381,000 units. This corresponds to around 74% of all installations. The European market accounts for about 16%, while the share of installations in America is approximately 10%.

An expansion of robotic automation will also enable employees in companies to devote themselves increasingly to more highly qualified tasks in the future. Increasing consumer demand for customized products also requires a flexible, digitalized production layout. Flexible production is characterized by a matrix layout as opposed to the original traditional assembly line. Robots can enable automatic transportation of workpieces in the matrix. Increases in efficiency resulting from the use of robots also support the reduction of emissions in production. With regard to ecological transformation, the greater precision of robots results in fewer rejects during production.

Business performance

KUKA Group

Due to the strong increase in global demand for automation solutions, KUKA achieved record figures in 2022. At €4,459.5 million, KUKA achieved the highest volume of orders received in the company's history. Orders received increased by 25.1% year on year (2021: €3,565.3 million). In China in particular, demand picked up strongly in the year under review. KUKA also set a new record for sales revenues. Revenues totaled €3,897.0 million and were thus up significantly by 18.6% on the previous year's level (2021: €3,286.2 million). The improvements were mainly due to growth in the Chinese market. The book-to-bill ratio of 1.14 in fiscal 2022 was above the previous year's level (2021: 1.08). The order backlog grew by 25.7% from €2,311.9 million as at December 31, 2021 to €2,905.6 million as at December 31, 2022. EBIT almost doubled to €118.4 million in the current fiscal year (2021: €61.8 million). Despite higher material and logistics costs, the margin increased considerably; this was due primarily to the higher sales volume compared to the previous year as well as improved project management. The Systems segment, among others, contributed to this. The EBIT margin increased to 3.0% (2021: 1.9%).

Financial position and performance

Summary

At the beginning of the year, the outlook for the global economy was fraught with great uncertainty and risk, due primarily to the war of aggression on Ukraine and the ongoing coronavirus pandemic. Despite these global challenges, demand for automation solutions increased and both orders received and revenues exceeded original expectations. KUKA achieved a new record with orders received totaling €4,459.5 million. This was 25.1% above the figure for the previous year (2021: €3,565.3 million). Sales revenues rose to €3,897.0 million and were thus 18.6% above the previous year's level (2021: €3,286.2 million). Free cash flow amounted to -€188.3 million (2021: €100.4 million). This development was due primarily to higher inventory levels linked to supply chain disruptions.

Earnings

KUKA Group posted orders received amounting to €4,459.5 million in fiscal 2022 – a significant increase of a further 25.1% over the previous year's level (2021: €3,565.3 million). Sales revenues also increased, in this case by 18.6% year on year (2021: €3,286.2 million) to €3,897.0 million. KUKA thus achieved the highest figures in the company's history for both sales revenues and orders received. The increase in orders received and sales revenues was seen in all segments, but was strongest in the China segment. The order backlog increased by 26.0% from €2,311.9 million as at December 31, 2021 to €2,912.4 million as at December 31, 2022, so that high capacity utilization can also be expected in subsequent periods.

The gross profit generated was €810.0 million, up 16.3% on the previous year (2021: €696.7 million). Taking into account the slightly greater increase in the cost of sales compared to sales revenues, this resulted in a gross margin at Group level of 20.8% after 21.2% in fiscal 2021. Gross margins increased in the Systems, Robotics and Swisslog segments, while a decline was recorded in the Swisslog Healthcare and China segments.

in € millions	2018	2019	2020	2021	2022
Orders received	3,305.3	3,190.7	2,792.2	3,565.3	4,459.5
Order backlog	2,055.7	1,967.4	1,992.6	2,311.9	2,912.4
Sales revenues	3,242.1	3,192.6	2,573.5	3,286.2	3,897.0
EBIT	34.3	47.8	-113.2	61.8	118.4
in % of revenues	1.1	1.5	-4.4	1.9	3.0
EBITDA	121.2	176.5	33.2	202.0	251.2
in % of revenues	3.7	5.5	1.3	6.1	6.4
Employees (Dec. 31)[1]	14,235	14,014	13,700	14,128	15,064

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

As a result of the increased business volume, expenses for administration, sales, and research and development rose by €57.6 million to €698.8 million (2021: €641.2 million). The optimized ratio of overhead costs to sales was 17.9% in 2022, compared with 19.5% in 2021.

Selling expenses increased by €27.7 million, or 9.7%, from €284.9 million in fiscal 2021 to €312.6 million in the fiscal year 2022. As at the balance sheet date 2022, KUKA had 1,665 sales employees worldwide (2021: 1,529 employees). Customer orientation always remains in focus and is continuously optimized and expanded.

Administrative expenses increased by €18.3 million from €196.7 million in fiscal 2021 to €215.0 million in the year under review. In the current year, KUKA invested in various projects to optimize internal processes. Due to the higher sales revenues, however, the ratio of administrative expenses to sales revenues fell from 6.0% in 2021 to 5.5% in 2022.

Research and development costs increased from €159.6 million in fiscal 2021 to €171.2 million in the reporting period. KUKA places high priority on research and development activities. As at December 31, 2022, 1,426 people were employed in research and development (December 31, 2021: 1,305 employees) – equivalent to 9.5% of the workforce in the year under review and 9.2% in the previous year.

The costs of €31.6 million (2021: €31.3 million) incurred for new developments in fiscal 2022 were capitalized and will be reported as scheduled amortization in subsequent financial statements. Amortization of R&D expenses capitalized in previous years amounted to €26.1 million, after €28.4 million in 2021. These included, among other things, impairment losses of €6.8 million (2021: €6.0 million) for projects no longer being pursued. The capitalization ratio fell from 19.2% in 2021 to 17.9% in 2022.

Other operating income, which included income from the sale of certain assets of a subsidiary in Belgium and investment subsidies, increased from €14.9 million in fiscal 2021 to €17.5 million in the current year under review. The increase in other operating expenses from €9.3 million in fiscal 2021 to €12.0 million in fiscal 2022 was mainly due to impairment losses in connection with assets held for sale.

In total, earnings before interest and taxes (EBIT) rose to €118.4 million in the year under review (2021: €61.8 million). This corresponds to an EBIT margin of 3.0% after 1.9% in the previous year. The higher sales volume, positive one-time effects such as the reversal of allowances for expected losses on receivables, the sale of real estate at a subsidiary in Belgium, and investment subsidies improved the margin. In particular, the positive business development in the China and Systems segments contributed to KUKA Group's positive result.

EBIT in KUKA Group

in € millions	2018	2019	2020	2021	2022
Group	34.3	47.8	-113.2	61.8	118.4
in % of sales revenues	1.1	1.5	-4.4	1.9	3.0

Depreciation and amortization decreased by €7.4 million in fiscal 2022 to €132.8 million (2021: €140.2 million). Amortization of capitalized leases in accordance with IFRS 16 remained virtually unchanged (2022: €35.6 million; 2021: €35.9 million). In the year under review, impairment losses of €6.8 million (2021: €10.6 million) were recognized for projects no longer being pursued.

As a result of the improved, positive EBIT, earnings before interest, taxes, depreciation and amortization (EBITDA) also increased from €202.0 million in fiscal 2021 to €251.2 million in the year under review.

EBITDA in KUKA Group

in € millions	2018	2019	2020	2021	2022
Group	121.2	176.5	33.2	202.0	251.2
in % of sales revenues	3.7	5.5	1.3	6.1	6.4

Financial result remains positive

The netted expenses and income in the financial result led to a positive balance, which, however, decreased by €5.5 million to €8.0 million (2021: €13.5 million).

Interest income increased by €2.4 million in fiscal 2022 to €24.7 million (2021: €27.1 million). There was a slight year-on-year decline in interest income on bank balances at a subsidiary in the China segment and in interest income from finance leases at KUKA Toledo Production Operations LLC, Toledo, USA (KTPO).

Interest expenses, on the other hand, rose from €19.2 million in the previous year to €21.9 million in the year under review. Interest expenses on existing financing instruments accounted for a significant proportion of this total (for further details, please refer to the notes). At €5.4 million, interest expenses in connection with leases remained at the previous year's level (2021: €5.2 million). Net interest expense for pensions increased slightly from €0.6 million in 2021 to €0.8 million in 2022. Expenditure for sureties and guarantees amounted to €1.4 million in both fiscal years.

The net amount of foreign currency gains of €80.0 million (2021: €45.6 million) and foreign currency losses of €77.3 million (2021: €43.8 million) resulted in a foreign currency gain of €2.7 million in the year under review (2021: gain: €1.8 million).

Net income from changes in the fair value of financial instruments decreased from €3.8 million in the previous year to €2.5 million in the current year under review. Current changes in the fair value of an interest rate swap remained virtually unchanged year-on-year at €2.9 million (2021: €2.8 million).

EBT (earnings before taxes) rose to €126.4 million, up considerably on the previous year (2021: €75.3 million). The tax expenditure of -€25.0 million (2021: -€25.9 million) corresponds to a tax ratio of 19.8% (2021: 34.4%). The change in the tax rate compared with the previous year was mainly due to the valuation of deferred tax assets and the offsetting effects of tax subsidies in North America and China.

Earnings after taxes amounted to €101.4 million, up €52.0 million on the previous year's figure (2021: €49.4 million). Despite the economic uncertainties and supply bottlenecks, demand for automation solutions remained high, resulting in a positive business development for KUKA Group. The resulting earnings per share stood at €2.21 in 2022 (2021: €0.98).

Group income statement (condensed)

in € millions	2018	2019	2020	2021	2022
Sales revenues	3,242.1	3,192.6	2,573.5	3,286.2	3,897.0
EBIT	34.3	47.8	-113.2	61.8	118.4
EBITDA	121.2	176.5	33.2	202.0	251.2
Financial result	0.6	6.6	3.0	13.5	8.0
Taxes on income	-18.3	-36.6	15.6	-25.9	-25.0
Earnings after taxes	16.6	17.8	-94.6	49.4	101.4

Financial position

For information on the financial management principles and objectives, or on the financing structure and liquidity position of the Group, please refer to note 29.

Assessment by rating agencies

Coronavirus-related impairments in particular had prompted the rating agency S&P Global Ratings to reduce KUKA's rating to a sub-investment grade of BB+ in 2021. The positive development of the rating-relevant KPIs in 2021 and the extended so-called "parental support" by Midea, documented by the squeeze-out application, already led to a significantly higher rating of KUKA by S&P in May 2022. In an unusually clear step, the rating was raised by three notches to the good investment grade level of BBB+ and also given a positive outlook.

Condensed Group cash flow statement

in € millions	2018	2019	2020	2021	2022
Cash earnings	129.0	167.1	40.9	223.3	255.6
Cash flow operating activities	-48.2	214.5	77.4	208.0	-198.2
Cash flow investment activities	-165.5	-193.8	-40.4	-107.6	9.9
Free cash flow	-213.7	20.7	37.0	100.4	-188.3

The positive development of the income situation was also reflected in the cash earnings. Cash earnings are an indicator derived from the earnings after taxes, adjusted for income taxes (excluding deferred taxes), net interest and cash-neutral depreciation, together with other non-cash income and expenses (including deferred taxes). In fiscal 2022, cash earnings once again increased year-on-year to €255.6 million (2021: €223.3 million).

Cash flow from current business operations of KUKA Group, on the other hand, fell from €208.0 million in 2021 to -€198.2 million in 2022.

Trade working capital increased by €355.3 million from €398.7 million in fiscal 2021 to €754.0 million in the current year under review. The increase is due not only to the expanded business volume, but much more to supply chain difficulties as well as serious material bottlenecks, especially in the China and Robotics segments. There was a year-on-year increase in all areas of trade working capital. At €719.8 million, inventories in 2022 were significantly higher than the previous year's figure of €445.6 million.

The increase in trade receivables and contract assets from €1,072.1 million in 2021 to €1,219.6 million in 2022 and in trade payables and contract liabilities from €1,119.0 million in 2021 to €1,185.4 million was somewhat more moderate than the increase within inventories. Overall, trade working capital developed as follows:

Trade working capital

in € millions	2018	2019	2020	2021	2022
Inventories	466.8	344.5	307.9	445.6	719.8
Trade receivables and contract assets	909.0	905.0	756.3	1,072.1	1,219.6
Trade payables and contract liabilities	809.5	739.4	669.6	1,119.0	1,185.4
Trade working capital	**566.3**	**510.1**	**394.6**	**398.7**	**754.0**

Capital expenditure in KUKA Group

The volume of investments in intangible and tangible assets totaled €129.5 million in fiscal 2022 (2021: €101.4 million). Payments for investments in investment property, which, unlike other investments, are allocated to cash flow from operating activities, amounted to €8.3 million. In the year under review, investments were again made in production buildings in Shunde, China. In order to make the best and most sensible use of the newly created space, some areas will be sublet. Additionally, further expansion and optimization work was carried out primarily at the Augsburg location.

The carrying amount of the company's own development work and internally generated intangible assets totaled €114.4 million (2021: €110.8 million).

Investments in intangible assets, property, plant and equipment, and investment property

in € millions	2018	2019	2020	2021	2022
Group	295.4	151.1	80.7	101.4	129.5

Investments in intangible assets in fiscal 2022 totaled €38.3 million (2021: €39.9 million), including €4.7 million (2021: €7.7 million) for licenses and other rights, €31.6 million (2021: €31.3 million) for internally generated software and development costs, and €2.0 million (2021: €0.9 million) for advance payments.

At €82.9 million, investments in property, plant and equipment were up on the previous year (2021: €61.5 million). Investments in land, leasehold rights and construction, including buildings on third-party land, totaled €6.9 million (2021: €9.7 million). Investments in technical plant and machinery remained virtually unchanged at €14.4 million (2021: €14.1 million), while investments in other plant/factory and office equipment totaled €18.6 million (2021: €15.6 million), and those in advances paid and construction in progress totaled €43.0 million (2021: €22.1 million). The increase in investments in property, plant and equipment is largely attributable to site expansions and modernizations, particularly in the China segment and at the Augsburg location.

For information on investment property, please refer to note 8.

Payments for acquisitions of groups of assets amounted to €0.7 million in the previous year. Cash outflows in the current year under review related to payments for the acquisition of a consolidated company in the Robotics segment in the amount of €12.5 million and are as follows:

Acquisitions

in € millions	2021	2022
UTICA Enterprises, Shelby Township, Michigan,USA	0.6	–
Pharmony SA, Luxembourg, Luxembourg	0.1	–
Delfoi Robotics OY Tampere, Finland	–	12.5
Total payments	**0.7**	**12.5**

Payments from disposals of fixed assets mainly include proceeds from the sale of real estate no longer required in Germany in the previous year and in Belgium in the year under review.

In addition, the cash flow from investment activities included proceeds amounting to €115.6 million from financial assets related to short-term financial management (2021: -€58.3 million) as well as interest received amounting to €24.7 million (2021: €27.1 million).

Negative free cash flow

Cash flow from current business operations (2022: -€198.2 million; 2021: €208.0 million) and cash flow from investment activities (2022: €9.9 million; 2021: -€107.6 million) together resulted in a negative free cash flow of -€188.3 million (2021: €100.4 million). The increase in trade working capital, in particular inventories, trade receivables, and contract assets, had a negative impact on the Group's financial position.

Positive cash flow from financing activities

The cash flow from financing activities increased to €22.1 million in 2022 after -€34.8 million in 2021. This includes dividend payments of €0.11 per share (2021: €0.11 per share) with a total amount of -€4.4 million (2021: -€4.4 million) and raising of current financial liabilities under the syndicated loan and inter-company loan as well as other changes in current liabilities to banks (2022: €49.3 million; 2021: -€9.0 million). Furthermore, cash flow from financing activities included both the repayment component of lease payments (2022: -€34.2 million; 2021: -€34.6 million) and also interest payments, including the interest component of the leases (2022: -€21.0 million; 2021: -€18.5 million), as well as payments from grants received (2022: €32.4 million; 2021: €31.7 million).

Group net liquidity

in € millions	2021	2022
Cash and cash equivalents	673.2	494.5
Current financial liabilities incl. accounts payable to affiliated companies	-332.0	-374.9
Non-current financial liabilities incl. accounts payable to affiliated companies	-193.1	-197.0
Group net liquidity	**148.1**	**-77.4**
Cash and guarantee facilities from syndicated senior facilities agreement	520.0	520.0
Guarantee facility from banks and surety companies	170.4	170.4

At the end of fiscal year 2022, net liquidity/debt fell from €148.1 million in the previous year to -€77.4 million in the year under review. Cash and cash equivalents decreased from €673.2 million in 2021 to €494.5 million in 2022.

In December 2019, KUKA AG had concluded an inter-company loan agreement covering a loan volume of €150.0 million with Midea International Corporation Company Limited, Hong Kong, a wholly-owned subsidiary of Midea Group. The inter-company loan was increased by a further €50.0 million to the current level of €200.0 million in May 2022. The loan is due for repayment on June 20, 2025. The carrying amount at December 31, 2022, taking into account the interest payments thereon, was €196.6 million. Furthermore, in September 2022, KUKA AG borrowed further €100 million with a term of 12 months from Midea Group, the carrying amount of which was €97.7 million as at December 31, 2022.

The second tranche of the promissory note loan at KUKA Toledo Productions Operations LLC, Toledo, Ohio, USA (KTPO) with a volume of USD 90 million was due in February 2022 and was repaid on schedule at the start of the year under review. The third tranche, with a volume of USD 50 million and a term until August 2023, amounted to €46.8 million as at December 31, 2022. The remaining changes within current financial liabilities related on the one hand to drawings within KUKA AG's syndicated loan agreement and on the other hand to the repayment, in the third quarter, of the second tranche of a EUR promissory note loan with a volume of €107.5 million.

Net assets and financial position

Non-current assets increased by €80.1 million from €1,252.5 million at December 31, 2021 to €1,322.6 million at December 31, 2022. Deferred taxes increased by €53.9 million to €149.7 million (2021: €95.8 million). The increase in deferred tax assets is mainly due to a change in legislation in the USA, which means that research and development expenditure must be recognized for tax purposes over a period of five years. Loss carryforwards accounted for €43.7 million (2021: €27.0 million).

Furthermore, both property, plant and equipment (December 31, 2022: €398.0 million; December 31, 2021: €368.5 million) and intangible assets (December 31, 2022: €553.7 million; December 31, 2021: €536.3 million) increased. Goodwill, which is reported within intangible assets, increased from €323.3 million in 2021 to €340.8 million in 2022. The increase is due on the one hand to the goodwill of €7.1 million arising from the acquisition of Delfoi Robotics Oy (Robotics segment) and on the other hand to currency effects. Investment property with a carrying amount of €9.4 million as at December 31, 2022 is held to generate rental income in the China segment (2021: €0.0 million). For further details, please refer to the information on investments in the section on the financial position.

Financial investments remained virtually unchanged at €4.8 million (December 31, 2021: €5.0 million).

The non-current finance lease receivables decreased as scheduled by €34.3 million to €66.4 million as at December 31, 2022 (December 31, 2021: €100.7 million). Right-of-use assets from leases also decreased slightly by €2.8 million to €111.9 million as at December 31, 2022 (December 31, 2021: €114.7 million). By contrast, non-current other receivables increased from €1.3 million as at December 31, 2021 to €5.8 million as at December 31, 2022, and investments accounted for using the equity method increased from €29.7 million as at December 31, 2021 to €32.9 million as at December 31, 2022.

At €2,623.3 million, current assets in the year under review were €166.7 million higher than in the previous year (December 31, 2021: €2,456.6 million).

There was an upward trend in all current balance sheet items with the exception of other receivables and other assets. The decrease in other current receivables and other assets is mainly due to the sale of securities with a maturity of significantly less than one year.

By contrast, there was a sharp increase in active trade working capital, as explained in the section on the financial position. Inventories alone increased by €274.2 million (December 31, 2022: €719.8 million; December 31, 2021: €445.6 million). Trade receivables increased from €596.9 million as at December 31, 2021 to €713.4 million as at December 31, 2022, and contract assets increased from €475.2 million as at December 31, 2021 to €506.3 million as at December 31, 2022. This trend is not only due to increased business and sales volumes, but is primarily attributable to supply and transportation chain disruptions, increased energy prices, new coronavirus lockdowns in China, and shortages of semiconductors, other intermediate products, and raw materials.

The current portion of the finance lease receivables increased by €8.6 million to €41.5 million as at December 31, 2022, compared with €32.9 million as at December 31, 2021. Income tax receivables remained almost at the prior-year level (December 31, 2022: €21.6 million; December 31, 2021: €21.1 million)

Due to the negative cash flow, cash and cash equivalents were down from €673.2 million as at December 31, 2021 to €494.5 million as at December 31, 2022.

Group net assets

in € millions	2018	2019	2020	2021	2022
Balance sheet total	3,218.5	3,426.6	3,116.5	3,709.1	3,955.9
Equity	1,339.6	1,348.6	1,203.7	1,354.6	1,500.4
in % of balance sheet total	41.6	39.4	38.6	36.5	37.9
Net liquidity/debt	92.9	50.2	30.0	148.1	-77.4

Overall, the balance sheet total of KUKA Group increased by €246.8 million from €3,709.1 million as at December 31, 2021 to €3,955.9 million as at December 31, 2022.

Equity ratio of 37.9%

As a result of the increase in both equity and the balance sheet total, the equity ratio also rose year-on-year from 36.5% to 37.9%. At €1,500.4 million, equity increased by €145.8 million as at the 2022 balance sheet date (December 31, 2021: €1,354.6 million). The subscribed capital of €103.4 million and the capital reserve of €306.6 million remained unchanged in the year under review as in the previous year.

The positive earnings after taxes of €101.4 million, foreign exchange effects of €12.1 million and the reduction in actuarial losses from the measurement of pensions not affecting net income, including the deferred taxes of €28.9 million thereon, were partly offset by the dividend distribution of €4.4 million. The main positive currency effect was attributable to the US dollar, whereas the development of the Chinese renminbi had the effect of reducing equity. Minority interests increased slightly from €325.3 million as at December 31, 2021 to €332.2 million as at December 31, 2022.

Financial liabilities decreased. The current portion of financial liabilities decreased from €332.0 million as at December 31, 2021, to €277.2 million as at December 31, 2022, and included the drawdowns of the syndicated loan and the third tranche of the USD promissory note loan maturing in August 2023, which was still reported as a non-current financial liability in the previous year. As a result, non-current financial liabilities decreased from €44.4 million as at December 31, 2021 to €0.4 million. By contrast, liabilities to affiliated companies increased significantly in both the non-current and current areas. The carrying amount of the loan from Midea Group Ltd. already drawn down in the previous year increased from €148.7 million to €196.6 million as at December 31, 2022. In addition, KUKA AG received a further €97.7 million from a financing facility with Midea Group Ltd (December 31, 2021: €0.0 million).

Lease liabilities fell slightly and amounted to €123.7 million as at December 31, 2022 (December 31, 2021: €124.6 million). Of this amount, €33.0 million (December 31, 2021: €30.2 million) was accounted for by current lease liabilities and €90.7 million (December 31, 2021: €94.4 million) by non-current lease liabilities. Provisions for pensions and similar obligations decreased from €95.8 million in the previous year to €59.6 million as at December 31, 2022, due primarily to the increase in interest rates.

Overall, non-current liabilities totaled €389.1 million as at the 2022 balance sheet date (December 31, 2021: €427.0 million).

By contrast, current liabilities increased by €137.8 million and amounted to €2,065.3 million as at December 31, 2022 (December 31, 2021: €1,927.5 million). Trade payables increased by €21.1 million to €655.3 million (December 31, 2021: €634.2 million). Contract liabilities also increased by €45.3 million from €484.8 million in the previous year to €530.1 million as at December 31, 2022.

The increase in other current liabilities from €276.6 million as at December 31, 2021 to €302.9 million as at December 31, 2022 is essentially attributable to the rise in personnel liabilities and government grants in the China segment.

The increase of €11.1 million in income tax liabilities from €27.6 million as at December 31, 2021 to €38.7 million as at December 31, 2022 was related to the changes to tax legislation in the USA.

Other provisions decreased by €11.7 million from €142.0 million as at December 31, 2021 to €130.3 million as at December 31, 2022. This was mainly due to the decrease in provisions recognized in the previous year for risks from pending transactions, litigation risks and restructuring.

Liabilities directly associated with assets classified as held for sale in the amount of €1.1 million (December 31, 2021: €0.0 million) were related to a pending sale of a subsidiary located in Russia.

Group assets and financial structure

in € millions	2021	2022
Current assets	2,456.6	2,623.3
Non-current assets	1,252.5	1,332.6
Assets	**3,709.1**	**3,955.9**
Current liabilities incl. liabilities directly associated with assets classified as held for sale	1,927.5	2,066.4
Non-current liabilities	427.0	389.1
Equity	1,354.6	1,500.4
Liabilities	**3,709.1**	**3,955.9**

Increase in working capital

Working capital increased from €125.6 million in the previous year to €384.1 million in fiscal 2022. There was an increase in all segments except Systems, but particularly in the Robotics and China segments.

Events after the balance sheet date

The shares held by Swisslog Healthcare Holding AG in Otsaw Swisslog Healthcare Robotics Pte. Ltd. amounting to 40% were reduced by one third as planned following the exercise of a put option. The sale of the shares was completed in January 2023 with the cash payment to Swisslog Healthcare Holding AG.

The shares in Otsaw Technology Solutions Pte. Ltd., which were received in the previous year as part of the consideration for the sale of current assets in the Healthcare segment, were swapped with shares in Otsaw Digital Pte.Ltd. on an equal basis at the beginning of fiscal 2023.

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. In the consolidated financial statements, KUKA Aktiengesellschaft is allocated to the Corporate Functions segment.

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 central register of companies.

Income statement of KUKA Aktiengesellschaft (HGB)

in € millions	2021	2022
Sales revenues	109.3	112.6
Other company-produced and capitalized assets	1.3	0.3
Other operating income	47.8	74.6
Cost of materials	-57.4	61.5
Personnel expenses	-55.3	-56.9
Depreciation and amortization of tangible and intangible assets	-10.0	-8.2
Other operating expenses	-123.3	189.6
Income/expenses from equity investments	-4.1	-17.8
Other interest and similar income	12.0	15.4
Depreciation of financial assets	-21.9	0.0
Interest and similar expenses	-7.3	-12.8
Taxes on income	-1.3	-1.2
Net loss for the year	**-110.2**	**-145.1**
Profit carryforward from the previous year	22.0	2.9
Withdrawal from retained earnings	95.5	142.2
Balance sheet profit	**7.3**	**0.0**

Balance sheet of KUKA Aktiengesellschaft (HGB)

Assets in € millions	Dec. 31, 2021	Dec. 31, 2022
Fixed assets		
Intangible assets	11.8	7.9
Property, plant and equipment	10.0	6.1
Financial assets	759.5	789.8
	781.3	**803.8**
Current assets		
Receivables from affiliated companies	561.4	640.7
Other receivables and assets	0.8	4.3
Securities	20.0	0.0
	582.2	**645.0**
Cash and cash equivalents	**14.4**	**13.6**
	596.6	**658.5**
Prepaid expenses	**3.6**	**4.9**
	1,381.5	**1,467.3**

Liabilities in € millions	Dec. 31, 2021	Dec. 31, 2022
Equity		
Subscribed capital	103.4	103.4
Capital reserve	305.8	305.8
Other revenue reserves	237.9	95.7
Balance sheet profit	7.3	-0.0
	654.4	**504.9**
Provisions		
Pension provisions	11.6	11.3
Provisions for taxes	14.2	14.0
Other provisions	37.9	25.0
	63.8	**50.4**
Liabilities		
Liabilities due to banks	252.6	229.1
Trade payables	3.6	9.5
Accounts payable to affiliated companies	402.7	669.7
Liabilities to provident funds	2.5	2.6
Other liabilities	1.9	1.1
	663.3	**912.0**
	1,381.5	**1,467.3**

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 €109.3 million in 2021 to €112.6 million in 2022. KUKA Aktiengesellschaft mainly generates its sales revenues from cost allocations and cost transfers to subsidiaries. These increased in the past fiscal year, primarily as a result of higher cost transfers from information technology.

The expenses associated with sales revenues are reported as cost of materials. These amounted to €61.4 million during the financial year (2021: €57.4 million).

Other operating income of €74.6 million (2021: €47.8 million) mainly includes foreign exchange gains primarily from the US dollar, Swiss franc and Swedish krona. In the previous year, income from the spin-off and transfer of buildings at the Augsburg location amounting to €1.7 million is also reported under other operating income.

Other operating expenses rose from €123.3 million to €189.6 million. The increase is primarily the result of higher value adjustments made on receivables from affiliated companies and higher currency losses. As with currency gains, these mainly relate to the US dollar, Swiss franc and Swedish krona.

Personnel expenditure increased by 2.9% year on year to €56.9 million (2021: €55.3 million). The collective wage agreement reached by IG Metall had a cost-increasing effect. In the previous year, there was also relief from short-time working. The average number of employees decreased from 551 in the previous year to 543 in fiscal 2022.

Income from investments totaled -€17.8 million (2021: -€4.1 million) and was thus down on the figure for the previous year. This includes the earnings contributions of the German companies that have a profit and loss transfer agreement with KUKA Aktiengesellschaft.

There are no write-downs on financial assets in fiscal 2022 (2021: -€21.9 million).

The interest result decreased by €2.1 million to €2.6 million (2021: €4.6 million). The decrease is due on the one hand to lower interest income from consolidated affiliated companies, which fell from €11.1 million in 2021 to €10.4 million in 2022. At the same time, higher expenses for bank loans and interest expenses to banks were incurred in 2022. Interest expenses to the parent company Midea also increased.

The reported taxes on income and earnings amounting to €1.2 million (2021: €1.3 million) mainly include tax expenses due to foreign withholding taxes.

KUKA Aktiengesellschaft’s net loss for fiscal 2022 was -€145.1 million (2021: -€110.2 million) and was below the previous year’s forecast of a considerable increase due to higher other operating expenses and lower earnings contributions from subsidiaries. Taking into account the profit of €2.9 million carried forward from the previous year and the withdrawal of €142.2 million from revenue reserves, this results in a balance sheet profit of €0.0 million.

Financial position of KUKA Aktiengesellschaft

One task of KUKA Aktiengesellschaft is to provide funds and guarantees for its subsidiaries’ current operations. The resources used for finance, such as the syndicated loan agreement and the loans from Midea Group, 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. Also included is a loan from Midea International Corporation Company Limited, Hong Kong in the amount of €200.0 million (2021: €150.0 million) and from Midea Electric Trading Company Pte. Ltd, Singapore in the amount of €100.0 million to KUKA Aktiengesellschaft. The balance of these receivables and liabilities was a net liabilities figure of €29.0 million (2021: a receivables figure of €158.7 million). Both receivables from and liabilities to affiliated companies are higher than in the previous year, with the changes in liabilities being primarily attributable to the loan mentioned above.

The liquid assets of KUKA Aktiengesellschaft fell from €14.4 million to €13.6 million. Financial liabilities decreased year on year by €23.5 million to €229.1 million (2021: €252.6 million). This includes liabilities from the drawdown of the working capital facility under the syndicated loan agreement.

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 €561.4 million in the previous year to €640.7 million. The increase results from the higher increase in inter-company financing. 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 decreased from €10.0 million in 2021 to €8.2 million in 2022. Investments totaling €33.7 million (2021: €293.1 million) were made in fiscal 2022. The investments in intangible assets relate primarily to IT infrastructure. The decrease in property, plant and equipment is primarily due to the transfer of assets to KUKA Real Estate GmbH & Co. KG. KUKA Aktiengesellschaft's direct equity investments in its subsidiaries are reported under financial assets. The increase to €789.8 million (2021: €759.5 illion) results from investments in the Swisslog Group and from the described transfer of property, plant and equipment to KUKA Real Estate GmbH & Co. KG.

Other assets increased to €4.3 million in 2022 (2021: €0.8 million) due to increased tax receivables from the tax office. There were no short-term securities in 2022 (2021: 20.0 million).

Equity was down €149.5 million on the previous year and thus reflects the negative result for the fiscal year. Additionally, a dividend of €4.4 million for the year 2021 was paid out in the 2022 fiscal year. The equity ratio of KUKA Aktiengesellschaft amounts to 34.4% as at the balance sheet date December 31, 2022 (2021: 47.4%).

As at December 31, 2022, other provisions totaled €25.0 million (2021: €37.9 million) and were thus down on the corresponding figure for the previous year. In addition to significantly lower provisions for impending losses on foreign currency derivatives, this was due to lower provisions for outstanding invoices and other provisions for risks.

Other liabilities decreased from €1.9 million to €1.1 million due to lower tax liabilities. The net impact on the balance sheet total of KUKA Aktiengesellschaft resulting from the effects described is an increase of €85.8 million to €1,467.3 million (December 31, 2021: €1,381.5 million).

Dependency report

Since there is no control agreement between KUKA Aktiengesellschaft and the majority shareholder, the Management Board prepares 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 measures being taken. There were no omitted measures."

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. The responsible use of natural resources for the sake of an intact environment and the continuous improvement of measures to achieve this are important prerequisites for economic success. As an industrial company, KUKA makes a measurable contribution to the reduction of environmental pollution. The aim here is to reduce the consumption of energy and other resources and to cut emissions and waste.

Resource-saving production and environmental protection

KUKA products and systems stand for innovation and quality. KUKA is committed to efficient production processes that protect the environment and reduce pollutants. Environmental issues are therefore continuously taken into account and evaluated by the environmental management team together with the employees responsible. Most of KUKA's production locations work according to internationally recognized management system standards in the areas of environment (ISO 14001), energy (ISO 50001), quality (ISO 9001) and other industry-specific regulations. With our Guidelines for Quality, Health, Safety and Environmental and Energy Management we have established specific procedural instructions relating to all management standards. For many years, KUKA has had a cross-location environmental management system lying within the responsibility of the Group's Management Board.

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, and promotes diversity and equal opportunities.

As at December 31, 2022, KUKA Group employed 15,064 people. The number of employees was thus 6.6% higher than in the previous year (2021: 14,128).

High standard of training and further education

When it comes to the professional training of young people, KUKA has for decades been offering 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. The company trains in line with requirements and maintains a high standard in the quality of apprentice training and the level of performance. Vocational education 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 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 KUKA Academy, we accompany and support our employees in their personal and professional development. At 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 IT training and language courses, as well as specialist training for a wide range of business areas. Seminars to promote personal and social skills, in particular communication and intercultural training, as well as global leadership circles complement our continuing education measures which we offer internationally, taking decentralized requirements into account.

Forecast, opportunity and risk report

Opportunity and risk report

Basic principles

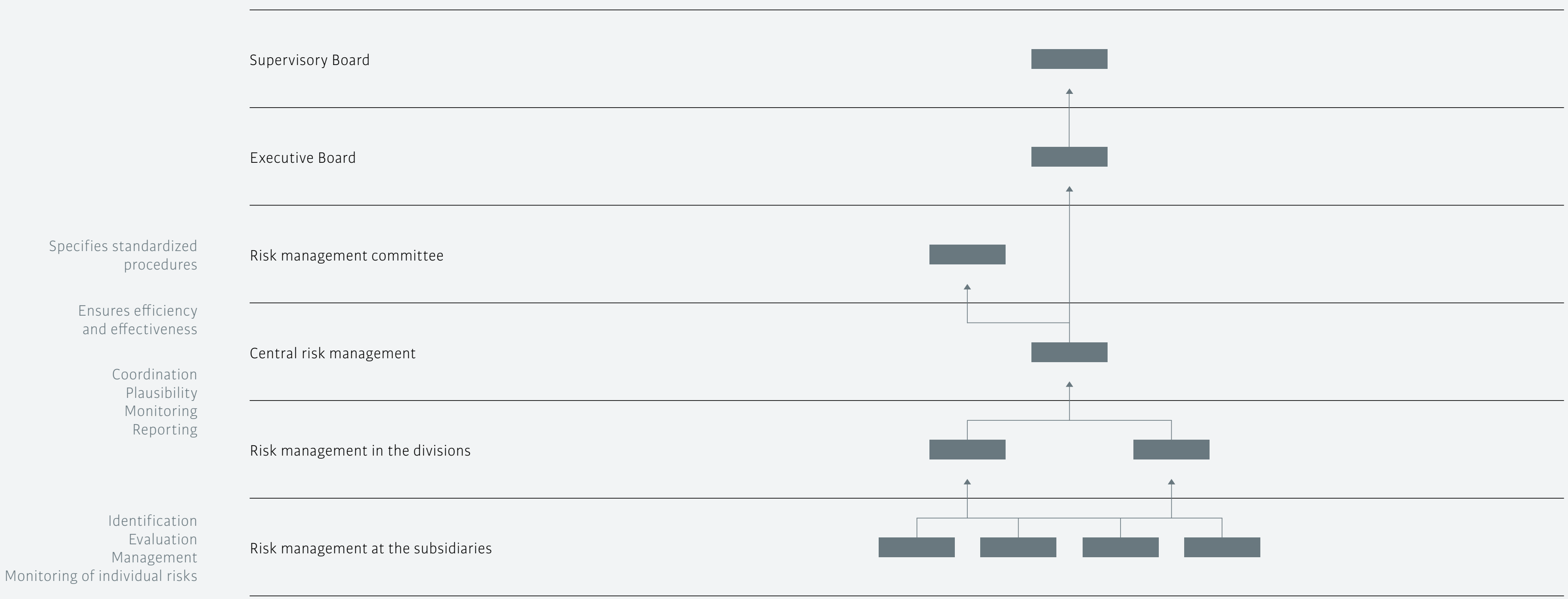
KUKA Group is a global enterprise with international operations. Any entrepreneurial activity provides new business opportunities, but also involves many potential risks. The Management Board of KUKA Aktiengesellschaft aims to systematically and sustainably improve the value of the company for all stakeholders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

To achieve this objective, the Management 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 business segments and subsidiaries are exposed. The risk management system meets the criteria described in the internationally recognized ISO 31000 standard.

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, in other words risks subsequent 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. These risks are reported if they exceed the threshold defined in the Group's risk management policy. Risks that remain below the threshold are left at segment level and evaluated at "0" in the Group, as the sum of these risks is immaterial for the Group even on a cumulative basis. The information collected in this way is summarized in a risk report that is also prepared each month and addressed to the Management 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 report and are discussed at monthly results discussions between the Management Board of KUKA Group and the management of the business segments and KUKA AG. The identified

Risk management organization



Internal and external auditors check the risk management system and the risk early detection system (RFS) risks are additionally presented and explained in more detail to the Management 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 Management Board and Supervisory Board meetings, especially by the Audit Committee.

Direct responsibility for the early identification, control and communication of risks lies with the management of the business segments and the individual subsidiaries, as well as with those responsible for the respective holding functions. 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 Management 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 policy 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 controlling system (see management report, "Internal control and risk management system" section) 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 contains an aggregated quantification of the risks managed at Group level and in 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.

Group risk exposure

in € millions	2021	2022
Legal risks	13.5	16.0
Economic risks	103.5	83.9
Financial risks	14.5	17.5
Political risks	not measurable	1.3
Other risks	9.3	12.3
Total for the Group	**140.8**	**131.0**

Top risks in the Group

Name	Probability of occurrence	Effect	Explanations	Development of risk expectation value compared with previous year
Supply chain disruption	Possible	Very high	Risk of global supply chain disruptions, material shortages and price increases	↘
Project risks	Possible	Very high	Settlement risk in the project portfolio	↗
Global tax risk	Possible	Very high	Risk of changes in global tax law	↗
Global currency fluctuations	Unlikely	Very high	Risk of unhedged currency fluctuations	↗
Location risks	Unlikely	Very high	Risk of location restrictions due to fire, natural hazards and disruptions in media supply	↗
Cyber	Possible	High	Risk of operational disruptions due to cyber attacks	↗
COVID	Possible	Medium	Risk of business disruptions due to COVID-19 pandemic	↘
Russia-Ukraine war	Likely	Medium	Risk of additional costs and operational disruptions due to the ongoing war of aggression on Ukraine	↗

Notes		
Probability of occurrence	Highly likely	> 50%
	Likely	25% – 50%
	Possible	10% – 25%
	Unlikely	1% – 10%
Effect	Very high	> 10 million
	High	5 – 10 million
	Medium	1 – 5 million
	Low	< 1 million

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.

In fiscal year 2022, KUKA Group was also affected by the global impact of the coronavirus pandemic, which among other things resulted in supply chain disruptions, and the Russian war of aggression on Ukraine. Nevertheless, KUKA was able to benefit from customers' willingness to invest, both from the automotive industry and from general industry. The slight global economic recovery had a positive impact on the company's business development. The risks that arose were largely managed through targeted action, such as the formation of crisis teams for material supply.

The damage limitation measures taken at KUKA Group meant that all necessary business processes could be kept up and running, and a large proportion of deliveries and projects were successfully completed. As the global crises continue, uncertainties arise as to whether the measures taken by KUKA Group are sufficient. The operating business would be adversely affected, for example, by temporary site closures, supply chain disruptions or even production stoppages. Delivery and supply chain disruptions, cyber attacks, shortage of skilled labor and the effects of inflation are considered the greatest risks. In the course of the risk management process, these risks have been investigated, evaluated and corresponding mitigation measures provided.

In particular, risks relating to energy and media supply were examined in detail and measures taken to ensure continuity of operations (such as extensions to the emergency power supply at the production sites). Regulatory changes such as the German Supply Chain Due Diligence Act were also incorporated into risk management.

Despite everything, the trend towards automation has been shown to remain intact, offering opportunities especially in logistics/e-commerce, healthcare, alternative drive systems, but also in non-industrial sectors. 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.

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, for example, by 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 a lack of patent and brand protection. KUKA has developed an independent strategy to safeguard its intellectual property, which is primarily secured by patents and trademark rights. In addition, product compliance processes have been established and are closely monitored.

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

Economic risks

The majority of operating risks within the risk exposure are economic risks. These are risks from the project portfolios such as delays in project execution caused by supply chain disruptions, technical problems, or the threat of contractual penalties for delays in project handover. Beyond this, there are product risks such as delayed deliveries which are primarily a result of risks in the supply chain. Global bottlenecks for the supply of electronic components continue to be the greatest risk, followed by price increases due to higher energy costs. The risk of increasing cyber attacks affects project and product business, and this holds a prominent position in the risk exposure of economic risks.

Specific mitigating measures are defined for each operating risk, for instance increased diversity in the supply chain and clauses for price adjustments.

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 serve 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 an inter-company loan concluded with Midea in December 2019 and increased in Mai 2022 with a term until 2025; and on a syndicated loan refinanced in 2018 with a term until 2025 and providing cash credit facilities and guarantee lines. A standard financial covenant (leverage) has been agreed for the syndicated loan. Furthermore, KUKA has access to a credit line concluded with Midea in 2018, which also has a term until 2025. 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".

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, in other words 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 policies 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.

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).

Political risks

The political framework conditions, such as the tensions in trade between the USA and China, new sanctions on Russia and the associated situation on the commodities markets, also have an impact on KUKA's business success. The associated risks were identified, analyzed and evaluated, and updated on an ongoing basis. However, we continue to expect fluctuating availability and prices for raw materials, intermediate products and finished goods.

IT risks and opportunities

IT risks are a particular focus of the risk management process because of the importance of IT for business processes. This is due, in particular, to the frequency of virus attacks or hacking and the damage they could potentially cause. These risks, also referred to as cyber risks, are included and assessed in the current risk inventory. The existing IT security and business continuity management systems as well as policies 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 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.

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 2022 due to the active countermeasures taken by KUKA to mitigate risk at an early stage and to eliminate risk sources, for example, by realigning processes and adapting training to specific target groups.

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 and through modern, flexible working conditions, in order to boost the satisfaction, motivation and qualification of the workforce. This also opens up opportunities for the recruiting of new employees.

Other risks

KUKA Group continuously monitors other risks and mitigates these to the greatest extent possible. Possible risks to the environment due to operational activities are predominantly attributable to the use of hazardous substances. Waters and soils can also be adversely affected by the legal disposal of waste, or even by unforeseeable accidents. Such events cannot be completely ruled out despite all precautionary measures taken. KUKA therefore takes wide-ranging preventive measures to ensure continual minimization of the potential environmental impact. Most of our production locations work according to internationally recognized management system standards in the areas of environment (ISO 14001), energy (ISO 50001), quality (ISO 9001) and other industry-specific regulations, for example, VDA 6 Part 4. For many years, KUKA has had a cross-location environmental management system. Risks resulting from climate change are also analyzed and assessed on an ongoing basis, such as extreme weather events like storms, hail or floods. In addition, we regularly monitor changes in the legal framework for environmental and climate protection in order to identify potential risks at an early stage. 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 minimize the risk.

Strategic risks and opportunities

KUKA's business segments aim to be among the market and technology 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 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.

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 the continuing high risk potentials, such as those arising from the effects of the coronavirus pandemic and the associated disruption to supply chains, which have been identified and evaluated in the risk management system, the Management 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 global economic recovery in 2021 from the strains of the coronavirus pandemic could only be continued to a limited extent in 2022 due to the war of aggression on Ukraine, high inflation and geopolitical headwinds. The negative effects of global uncertainties will initially continue to impact economic activity in 2023, according to the OECD. The more difficult financing conditions are weighing on corporate investment activity, while inflation is at the same time reducing consumers' purchasing power. As a result, price increases in many areas can only partially be passed on to end customers. Overall, experts expect global economic output to grow by 2.5 percent in 2023 (OECD Economic Outlook November 2022). This growth is expected to occur mainly in developing countries. For the euro zone and the EU, the OECD expects growth of only 0.3 percent. The German economy is even expected to contract by 0.6 percent in 2023. For the USA, growth of 0.7 percent is forecast. For China, on the other hand, 4.5 percent growth is anticipated.

The OECD expects inflation to remain high in 2023 at 7 percent in the EU and 6.1 percent in the euro zone. In Germany, consumer prices are set to rise by 7.5 percent. Inflation of 3.4 percent is forecast for the USA.

Automation & digitalization

Automation is increasingly playing a central role in ensuring the ability of manufacturers to meet the changing demands of industry and technology, and providing a strong competitive advantage to those who efficiently automate their production. At present, the industry, like the global economy as a whole, is facing multiple challenges: the very high inflation rate due to food and energy prices and the slowdown of growth in China due to COVID-19-related constraints, uncertainties due to the war in Ukraine (such as the risk of a sudden stop of natural gas supplies from Russia to the European Union), and geopolitical fragmentation. Some of these aspects impact our markets directly, others indirectly. Imbalances between supply and demand are making themselves felt, for example, in the form of supply bottlenecks for semiconductors or steel, thus complicating production planning. In their efforts to combat inflation, central banks are tightening their monetary policy. This will lead to higher project financing costs, which in turn could have a negative impact on orders received.

In the medium term, global megatrends such as the increasing customization of products, digitalization, demographic change, but also increased regionalization will continue to intensify, primarily as a result of the experience gained from the coronavirus crisis and trade disputes. This experience shows how important new business models are becoming which enable customers to flexibly adapt their processes to rapidly changing market needs. Logistical and political risks could thus be minimized. With increasing regionalization, local capacities are being built up and the demand for intelligent automation solutions is growing. Especially in high-wage countries, companies are compelled to produce at high efficiency levels in order to remain internationally competitive. In addition, the growing demand for customized products will further increase the degree of automation. This calls for new business models that will fundamentally and lastingly transform not only production in the future, but also the value creation process as a whole.

Increasing complexity, growing numbers of variants with fluctuating production volumes, new technologies and ever-increasing global competition (in terms of prices) are presenting manufacturing companies with new challenges. Manufacturers therefore require flexible automation solutions in order to adapt quickly to a changing environment and continuously improve efficiency. This is why, in many production and material flow processes, a robot's role has changed significantly in recent years. In the past, isolated robots were used to automate individual tasks and process steps behind safety fences. Automation has traditionally been a complex task, from programming through to commissioning. The trend today is to lower the barriers to entry for automation by simplifying installation, deployment and operation, improving software and safety functions, and reducing costs. This leads to increased productivity and flexibility. Trends in technology, such as digitalization, machine learning and artificial intelligence, are accelerating these developments.

The IFR predicts a compound annual growth rate (CAGR) of 7 percent for global robot installations from 2022 to 2025, according to its forecast in the World Robotics Report of October 2022. The long-term growth trend in robot installations will continue. The number of installed units will reach the 600,000 mark in 2023 and the 700,000 mark in 2025.

The North American market is expected to grow at a CAGR of 6 percent. The medium-term outlook for the European market is weaker due to the threat of recession. A growth rate of just 1 percent is expected. At 9 percent, Central and Eastern Europe are expected to grow significantly faster than the rest of Europe. The Asian market, especially China, continues to be the growth driver. A CAGR of 8 percent is forecast.

Automotive

According to the German Association of the Automotive Industry (VDA), the economy and companies in the German automotive industry are facing unprecedented and unimagined challenges. Supply and transportation chains have been severely impacted by war of aggression against Ukraine, new coronavirus lockdowns in China, and shortages of semiconductors, other intermediate products, and raw materials. Furthermore, the massive rise in energy prices weighed on the companies' business performance.

In these challenging times, the automotive industry continues to push ahead resolutely with the transformation from the fossil combustion engine to new sustainable drive technologies. It is thus facing the biggest transformation in its history. In its 2022 Annual Report published in November, the VDA describes the automotive industry as part of the ecological transformation toward a climate-neutral industry in the long term and a driving force behind this transformation. This will lead to increasing investments. The association expects manufacturers and suppliers in the German automotive industry alone to spend more than 220 billion euro on new production facilities in the areas of electromobility, batteries, digitalization and related research fields between 2022 and 2026. For example, the conversion and adaptation of production facilities to manufacture fully electric vehicles and plug-in hybrid vehicles alone will cost around 100 billion euro by 2030. In Europe, the association expects at least 27 so-called gigafactories for battery cell and module production. According to these expectations, Germany alone needs to add at least 2,000 public charging points every week, nearly six times more than in the past. To achieve this, around 74 billion euro will have to be invested in the charging infrastructure by 2030.

Non-automotive

The customers of mechanical and systems engineering companies expect efficient production and logistics processes in the manufacture of individualized products, and this at competitive prices. Automated solutions can help make processes more flexible, faster and more efficient. Growth opportunities here are primarily offered by markets outside the automotive industry. Despite the worldwide increase in robot installations in the non-automotive sector during the past few years, robot densities (number of robots per 10,000 workers) are still at a low level. In Germany, the non-automotive robot density was equivalent to 233 robots per 10,000 workers according to the October 2022 IFR report. By comparison, the automotive industry had a robot density of 1,500 robots. In the USA, the robot density rose to 175 in general industry and 1,457 in the automotive industry. In China, the world's largest robot market, the robot density in non-automotive markets rose to 266, while the density in the automotive industry was 772 per 10,000 workers.

In 2021, the electronics industry was once again the largest customer group for robot-based automation with approximately 137,000 robots installed worldwide. On average, annual sales of robots in the electronics industry increased by 8 percent between 2016 and 2021. Contributing factors are the high demand for electrical products and components as well as increasing investments in infrastructure, particularly in 5G technologies. The electronics industry operates under strong margin pressure and very strict production and quality standards. Robots are particularly suitable for processing very small parts at high speeds and at the same time with high precision, around the clock. This enables manufacturers in the electronics industry to guarantee the required quality with high throughput and to produce at competitive prices. With intelligent end effectors and vision technologies, the areas of application can be expanded still further.

New technologies enabling the simpler operation of robots, for example, are also providing a boost to automation. This increases the attractiveness of automation solutions in production and logistics environments that have previously not been automated to any great extent. But also the strong growth of sectors such as e-commerce offers opportunities for automation. Ever more goods are being ordered online and customers want delivery times to be as short as possible. As a result, the demands on warehousing are becoming increasingly complex in the efforts to fulfill the growing number of incoming orders even faster. The cost and competitive pressures in e-commerce are intense and companies that do not adapt quickly enough to the dynamic environment will be forced out of the market. Consequently, efficient automation solutions are in greater demand as a means of remaining competitive.

China

Although the Chinese economy recorded weaker growth in 2022 than in recent years, it was significantly less affected than the rest of the world by the war of aggression on Ukraine. However, according to the resolutions of the 20th Party Congress in October 2022, the VDMA does not anticipate any fundamental economic changes in course. For this reason, experts are not expecting consumption and investment activity to recover. Nor are state-funded growth stimuli expected, due to high spending in connection with the ongoing COVID-19 measures. Additionally, there are shortfalls in revenue due to the real estate crisis. There is a glimmer of hope, however: The automotive industry remains a growth engine. However, this assumes that there are no other tariff or non-tariff barriers to trade.

According to the IFR, 268,195 robots were installed in China in 2021. Around 30 percent of these were produced by Chinese manufacturers. The installed base increased from 961,566 to 1,224,236 units, up 27 percent on the previous year. With its high growth rates, the Chinese market remains the largest robotics market in the world. To meet the high demand, domestic and foreign robot manufacturers have been setting up production facilities in China and continuously increasing their capacities. It is massive investment from the automotive industry, in particular, that has boosted robot installations since 2010. As a result, China has become both the world's largest automotive market and the world's largest production location for cars (including electric cars).

Due to its high growth potential, the Chinese robot and automation market is a core element of KUKA's growth strategy. KUKA plans further expansion of its market share in China. For 2023, the IFR expects an increase of 8 percent in installed robots in China.

Summary *

Global uncertainties and risks are weighing on the growth prospects for the world economy in 2023. Above all, the war of aggression on Ukraine, fears of a global recession, the energy crisis and labor shortages are weighing on the outlook and leading to a prolonged period of uncertainty. Despite the difficult conditions, KUKA is looking ahead into 2023 with confidence. Continued high demand for automation solutions is expected.

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 currencies of importance to KUKA are presented in detail in the notes. The handling of interest rate and currency risks in KUKA Group is described in the opportunity and risk report and in the notes.

Anticipated business development in KUKA Group

in € millions	2022	2023 expectations
Orders received	4,459.5	at prior-year level[1]
Revenues	3,897.0	slightly above prior-year level[1]
EBIT margin	3.0%	rising
Earnings after taxes	101.4	above prior-year level[1]
Free cash flow	-188.3	positive[1]

[1] Definitions:

slightly above/below prior-year level: absolute change compared to prior year <±10%

above/below prior-year level: absolute change compared to prior year ≥ ±10%

at prior-year level: absolute change compared to prior year: ≤ ±3%

Orders received, sales revenues and EBIT margin

Following the record result in orders received, the order volume for the full year 2023 is expected to be on a par with the previous year. The forecast for revenue is slightly above the prior-year level. Furthermore, an increase of the EBIT margin is again expected in the single-digit range.

Earnings after taxes

In the 2022 fiscal year, KUKA Group reported earnings after taxes of €101.4 million. For 2023, KUKA expects earnings after taxes at Group level to be above the prior-year level.

Free cash flow

KUKA Group's free cash flow is primarily generated from operating profits and the development of working capital. Positive free cash flow is expected for 2023.

KUKA AG

KUKA AG's result in the separate financial statements depends mainly on the profit transfers of the German subsidiaries and on dividends from subsidiaries. Net income for the year is the most important performance indicator. KUKA Aktiengesellschaft expects a significant improvement in net income compared to the previous year.

* The forward-looking statements are based on the information, expectations and estimates of the company available at the time the forecast report was prepared.

Corporate Governance Statement

Reference is made to published information on the KUKA AG website for the declaration regarding corporate governance (ratio of women) pursuant to section 289f of the German Commercial Code (HGB): www.kuka.com.

Group financial statements

Group financial statements

Group income statement

of KUKA Aktiengesellschaft for the period January 1 to December 31, 2022

in € millions	Notes	2021	2022
Sales revenues	**1**	**3,286.2**	**3,897.0**
Cost of sales	2	-2,589.5	-3,087.0
Gross earnings from sales		**696.7**	**810.0**
Selling expenses	2	-284.9	-312.6
(of which, impairment losses including reversal of impairment losses on trade receivables and contract assets)		(-14.1)	(6.7)
Research and development expenses	2	-159.6	-171.2
General and administrative expenses	2	-196.7	-215.0
Other operating income	3	14.9	17.5
Other operating expenses	3	-9.3	-12.0
Loss from companies consolidated at equity		0.8	1.7
Earnings before interest and taxes (EBIT)		**61.8**	**118.4**
Depreciation and amortization		140.2	132.8
Earnings before interest, taxes, depreciation and amortization (EBITDA)		**202.0**	**251.2**
Result from changes in the fair value of financial instruments	4	3.8	2.5
Interest income	4	27.1	24.7
Interest expense	4	-19.2	-21.9
Foreign currency gains/losses	4	1.8	2.7
Financial result		**13.5**	**8.0**
Earnings before taxes		**75.3**	**126.4**
Taxes on income	5	-25.9	-25.0
Earnings after taxes		**49.4**	**101.4**
(of which, attributable to minority interests)		(10.4)	(13.3)
(of which, attributable to KUKA AG)	6	(39.0)	(88.1)
Earnings per share (undiluted/diluted) in €		**0.98**	**2.21**

Group statement of comprehensive income

of KUKA Aktiengesellschaft for the period January 1 to December 31, 2022

in € millions	Notes	2021	2022
Earnings after taxes		**49.4**	**101.4**
Items that may potentially be reclassified to profit or loss			
Differences from currency translation attributable to KUKA AG		60.9	20.0
Differences from currency translation attributable to minority interests		33.0	-7.9
Items that are not reclassified to profit or loss			
Change in fair value of equity instruments		0.5	–
Changes of actuarial gains and losses	23	16.2	37.1
Deferred taxes on changes of actuarial gains and losses		-1.9	-8.2
Changes in value recognized directly in equity (other comprehensive income)		**108.7**	**41.0**
Total comprehensive income		**158.1**	**142.4**
(of which, attributable to minority interests)		(43.4)	(5.4)
(of which, attributable to KUKA AG)		(114.7)	(137.0)

Group cash flow statement [1]

of KUKA Aktiengesellschaft for the financial year 2022

in € millions	2021	2022
Earnings after taxes	**49.4**	**101.4**
Income taxes	8.1	91.4
Net interest	-7.8	-2.8
Amortization of intangible assets	53.5	49.6
Depreciation of tangible assets	49.8	46.9
Depreciation of financial investments	–	0.7
Depreciation of right-of-use assets	35.9	35.6
Other non-payment-related income	-8.5	-88.7
Other non-payment-related expenses	42.9	21.5
Cash earnings	**223.3**	**255.6**
Disposal of assets	-2.2	-1.2
Changes in provisions	-29.3	-21.1
Changes in current assets and liabilities		
Changes in inventories	-127.2	-286.4
Changes in receivables and deferred charges	-305.6	-203.5
Changes in liabilities and deferred income (excl. financial debt)	496.3	178.4
Cash outflows for investments in investment property	–	-8.3
Income taxes paid	-14.4	-79.2
Investments/financing matters affecting cash flow	-32.9	-32.5
Cash flow from operating activities	**208.0**	**-198.2**
Payments from disposals of fixed assets	8.8	3.3
Payments for capital expenditures on intangible assets	-39.9	-38.3
Payments for capital expenditures on tangible assets	-61.5	-82.9
Proceeds from investment in financial investments and at-equity investments	16.8	–
Payments for/proceeds from financial assets related to short-term financial management	-58.3	115.6
Payments for the acquisition of consolidated companies and groups of assets	-0.7	-12.5
Interest received	27.2	24.7
Cash flow from investment activities	**-107.6**	**9.9**

in € millions	2021	2022
Free cash flow	**100.4**	**-188.3**
Dividend payments	-4.4	-4.4
Proceeds from/payments for the acceptance/repayment of bank loans, promissory note loans and inter-company loans as well as changes in current liabilities to banks	-9.0	49.3
Payments from grants received	31.7	32.4
Interest paid	-18.5	-21.0
Repayment of lease liabilities	-34.6	-34.2
Cash flow from financing activities	**-34.8**	**22.1**
Payment-related changes in cash and cash equivalents	**65.6**	**-166.2**
Exchange-rate-related and other changes in cash and cash equivalents	53.0	-12.5
Changes in cash and cash equivalents	**118.6**	**-178.7**
Cash and cash equivalents at the beginning of the period	554.6	673.2
Cash and cash equivalents at the end of the period	**673.2**	**494.5**

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

Group balance sheet

of KUKA Aktiengesellschaft as at December 31, 2022

Assets

in € millions	Notes	Dec. 31, 2021	Dec. 31, 2022
Non-current assets			
Intangible assets	(7)	536.3	553.7
Property, plant and equipment	(8)	368.5	398.0
Investment property	(8)	–	9.4
Financial investments	(9)	5.0	4.8
Investments accounted for at equity	(10)	29.7	32.9
Right-of-use assets	(11)	114.7	111.9
Finance lease receivables	(11)	100.7	66.4
Income tax receivables	(5)	0.5	–
Other receivables and other assets	(15)	1.3	5.8
Deferred taxes	(5)	95.8	149.7
		1,252.5	**1,332.6**
Current assets			
Inventories	(12)	445.6	719.8
Trade receivables	(13)	596.9	713.4
Contract assets	(14)	475.2	506.3
Finance lease receivables	(11)	32.9	41.5
Income tax receivables	(5)	21.1	21.6
Other receivables and other assets	(15)	211.7	126.2
		1,783.4	**2,128.8**
Cash and cash equivalents	**(16)**	**673.2**	**494.5**
		2,456.6	**2,623.3**
		3,709.1	**3,955.9**

Equity and liabilities

in € millions	Notes	Dec. 31, 2021	Dec. 31, 2022
Equity	**(17)**		
Subscribed capital	(18)	103.4	103.4
Capital reserve	(19)	306.6	306.6
Revenue reserve	(20)	575.4	665.4
Other reserves	(22)	43.9	92.8
Minority interests	(21)	325.3	332.2
		1,354.6	**1,500.4**
Non-current liabilities			
Financial liabilities	(26)	44.4	0.4
Accounts payable to affiliated companies	(26)	148.7	196.6
Lease liabilities	(25)	94.4	90.7
Other liabilities	(27)	22.3	18.6
Pension provisions and similar obligations	(23)	95.8	59.6
Deferred taxes	(5)	21.4	23.2
		427.0	**389.1**
Current liabilities			
Financial liabilities	(26)	332.0	277.2
Lease liabilities	(25)	30.2	33.0
Trade payables	(25)	634.2	655.3
Contract liabilities	(14)	484.8	530.1
Accounts payable to affiliated companies	(25/26)	0.1	97.8
Income tax liabilities	(25)	27.6	38.7
Other liabilities	(27)	276.6	302.9
Other provisions	(24)	142.0	130.3
		1,927.5	**2,065.3**
Liabilities directly associated with assets classified as held for sale	(28)	–	1.1
		3,709.1	**3,955.9**

Development of Group equity

of KUKA Aktiengesellschaft for the financial year 2022

Notes	18	18	19	22			20		21	
				Other reserves						
in € millions	Number of shares outstanding	Subscribed capital	Capital reserve	Currency translation	FVOCI measurement	Actuarial gains and losses	Annual net income and other revenue reserves	Equity attributable to KUKA	Minority interests	Total
Jan. 1, 2021	**39,775,470**	**103.4**	**306.6**	**16.1**	**-1.4**	**-47.6**	**546.1**	**923.2**	**280.5**	**1,203.7**
Earnings after taxes	–	–	–	–	–	–	39.0	39.0	10.4	49.4
Other income	–	–	–	60.9	0.5	14.3	–	75.7	33.0	108.7
Total comprehensive income	**–**	**–**	**–**	**60.9**	**0.5**	**14.3**	**39.0**	**114.7**	**43.4**	**158.1**
KUKA AG dividend	–	–	–	–	–	–	-4.4	-4.4	–	-4.4
Change in scope of consolidation/Other changes	–	–	–	–	0.9	0.2	-5.3	-4.2	1.4	-2.8
Dec. 31, 2021/Jan. 1, 2022	**39,775,470**	**103.4**	**306.6**	**77.0**	**–**	**-33.1**	**575.4**	**1,029.3**	**325.3**	**1,354.6**
Earnings after taxes	–	–	–	–	–	–	88.1	88.1	13.3	101.4
Other income	–	–	–	20.0	–	28.9	–	48.9	-7.9	41.0
Total comprehensive income	**–**	**–**	**–**	**20.0**	**–**	**28.9**	**88.1**	**137.0**	**5.4**	**142.4**
KUKA AG dividend	–	–	–	–	–	–	-4.4	-4.4	–	-4.4
Employee share program	–	–	–	–	–	–	1.5	1.5	1.3	2.8
Change in scope of consolidation/Other changes	–	–	–	–	–	–	4.8	4.8	0.2	5.0
Dec. 31, 2022	**39,775,470**	**103.4**	**306.6**	**97.0**	**–**	**-4.2**	**665.4**	**1,168.2**	**332.2**	**1,500.4**

Group notes

General comments

Accounting principles

KUKA Aktiengesellschaft, registered at the district court of Augsburg under HRB 22709 and headquartered in Augsburg (Zugspitzstrasse 140, 86165 Augsburg, Germany), has prepared its consolidated financial statements for the period ending December 31, 2022 according to the International Financial Reporting Standards (IFRS) of the International Accounting Standards Board (IASB) adopted for use in 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 315e 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 2022 fiscal year. The currency reported in the consolidated financial statements is the euro. Unless otherwise noted, all amounts in the notes to the accounts are stated in millions of euros (€ million). 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 and plan assets reported at fair value, 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.

Midea Group holds 100% of the shares in KUKA Aktiengesellschaft. KUKA Aktiengesellschaft is thus an 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 www.midea-group.com/Investors/financial-reports. Mr. Xiangjian He can exercise significant influence over Midea Group Co. Ltd., Foshan City, Guangdong Province, China, which means that from the perspective of KUKA Group, Mr. He is to be regarded as the ultimate controlling party, represented in this case by a natural person.

Scope of consolidation

KUKA Group's scope of consolidation changed in the course of the fiscal year due to newly established companies, mergers and other changes.

The following table shows the development of the scope of consolidation by region for the 2022 fiscal year:

Country	EMEA		Americas		APAC		Total	
	Consolidated companies	At equity companies	Consolidated companies	At equity companies	Consolidated companies	At equity companies	Consolidated companies	At equity companies
Jan. 1, 2022	**51**	**–**	**18**	**–**	**26**	**5**	**95**	**5**
Start-up/purchase	2	–	–	–	–	–	2	–
Mergers	–	–	–	–	–	–	–	–
Total changes	2	–	–	–	–	–	2	–
Dec. 31, 2022	**53**	**–**	**18**	**–**	**26**	**5**	**97**	**5**

The Systems segment comprises 15 fully consolidated entities (2021: 15 entities). In the Robotics division, 1 entity was newly founded and 1 entity was acquired, resulting in 38 fully consolidated entities (2021: 36 entities) in the Robotics segment as at the balance sheet date. As in the previous year, the Robotics segment comprises 2 entities at equity. The Swisslog segment comprises 19 fully consolidated entities (2020: 19 entities). The Swisslog Healthcare division reported 13 fully consolidated entities as at December 31, 2022 (2021: 13 entities) and 1 entity at equity (2021: 1 entity). The China business segment reported 8 fully consolidated entities (2021: 8 entities).

Two at-equity entities are presented in the China segment (2021: 2 entities). Four fully consolidated entities are reported in Corporate Functions as at the balance sheet date (2021: 4 entities). Overall, the number of fully consolidated companies increased from 95 as at December 31, 2021 to 97 as at December 31, 2022. The number of entities accounted for using the equity method remained unchanged at 5.

Start-up / company acquisition

KUKA Group established KUKA TR ROBOT TEKNOLOJİLERİ SANAYİ TİCARET ANONİM ŞİRKETİ in ÜMRANİYE, Turkey, during the fiscal year. In addition, the company Delfoi Robotics OY in Tampere, Finland, was acquired in fiscal year 2022. Both companies were included in the consolidated financial statements for the first time and were allocated to the Robotics business segment.

Company acquisition 2022

Delfoi Robotics OY

In the fourth quarter of 2022 Visual Components Oy, Espoo, Finland acquired 100% of the shares in Delfoi Robotics Oy Tampere, Finland. Delfoi works on the development and sale of industrial robotics software solutions and related services. Delfoi's Offline Programming ("OLP") software represents the most advanced offline programming technology and complements the portfolio of solutions offered by Visual Components and KUKA.

With a view to further development of important functions in the simulation environment, this acquisition is intended to enable KUKA to accelerate development accordingly and close gaps in the simulation and offline programming of robot processes.

The purchase price of €12.5 million has already been paid. The incidental acquisition cost amounted to €0.5 million. Cash and cash equivalents as well as shares of previously consolidated companies were not acquired.

In the period from October 11 to December 31, 2022, the acquired company generated revenues of €0.8 million and earnings of €0.1 million. If the company had already been taken over at the beginning of 2022, the contribution to sales revenues would have amounted to around €2.8 million and earnings would have increased by around €0.4 million.

The gross amount of trade receivables acquired was €0.3 million. No impairment losses were applicable here.

The following table shows the carrying amounts assumed as a result of the purchase immediately prior to the acquisition as well as the opening balance sheet:

in € millions	Carrying amounts assumed	Opening balance sheet
Intangible assets	–	13.3
Receivables and other assets	0.9	1.5
Liabilities and provisions	-0.9	-2.3
Total	**–**	**12.5**

The acquired intangible assets essentially consist of technology / software and the brand names. Receivables primarily concern orders in house at the time of the acquisition. Contingent liabilities were not transferred. Deferred taxes were determined by multiplying the total identified and revalued assets and liabilities by a tax rate of 20.0%. Taking into account the purchase price and the fair value of the net assets, this resulted in goodwill of €7.1 million. This reflects the future synergies in particular.

Consolidation principles

If subsidiaries are directly or indirectly controlled pursuant to the control concept under IFRS 10, they are included in KUKA's consolidated financial statements in accordance with the rules of full consolidation. Control can be assumed if KUKA Group has a right to the variable returns. Through its control, KUKA Group is also in a position to influence the returns from the company. The date on which control is gained or lost is decisive for inclusion of a company in consolidation or 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.

Guarantees or warranties that KUKA AG issues on behalf of consolidated subsidiaries are eliminated if there is no external effect.

Currency translation

Receivables and payables denominated in foreign currency are initially recognized at the transaction rate and translated at the applicable middle rate on the balance sheet date. Any resulting translation gains or losses are recognized in the income statement in the functional area in which they arose. If, for example, a translation gain or loss arises from a foreign currency transaction in respect of supplies and services, it is reported under the cost of sales. Translation effects resulting from loan transactions are shown under the financial result.

The annual financial statements of foreign companies included in the consolidated financial statements are translated from their functional currency into euro in accordance with IAS 21. Exceptions are Hungaria Kft., Taksony, Hungary and KUKA TR ROBOT TEKNOLOJİLERİ SANAYİ TİCARET ANONİM ŞİRKETİ, ÜMRANİYE, Turkey, whose functional currency is the euro.

Unrealized price differences from the translation of equity-replacing loans to foreign subsidiaries in foreign currency are reported directly in the aggregate income/loss and so recognized directly in equity. On loss of control these effects are released through profit or loss. For derivative goodwill recognized prior to January 1, 2005, the translation rate into euro has been fixed at the respective historical rates.

Equity is translated at historical rates. Expenses and income are translated at the average monthly rates. Both differences arising from the translation of assets and liabilities compared to the prior year and translation differences between the income statement and the balance sheet are recognized directly in equity within the other reserves. If exchange rate differences exist when a company leaves the Group, they are released to income.

Within KUKA Group, there are leases in accordance with IFRS 16 that were concluded in currencies other than the functional currency of the respective entity. These leases are first translated into the functional currency of the subsidiary and then into euro as the Group currency.

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

Country	Currency	Rate – balance sheet date	
		Dec. 31, 2021	Dec. 31, 2022
China	CNY	7.1947	7.3582
Switzerland	CHF	1.0331	0.9847
USA	USD	1.1326	1.0666

Accounting and valuation principles

Orders received

An order is recognized under orders received once a binding purchase order has been received. The volume of orders received is a non-cumulative value that relates to a fiscal year. Framework agreements per se or even memoranda of understanding do not yet result in orders received. Only when there is a legally binding order release under this framework agreement is an incoming order recognized.

Order backlog

The order backlog represents a stock variable and contains orders as long as a binding customer order has not yet been invoiced. In the case of long-term contract manufacturing, revenue is taken as the reference value. In the event of an order cancelation in the current year, the orders received and correspondingly the order backlog are reduced. However, if cancelation of an order from the previous year is involved, only the order backlog is reduced.

Revenue recognition

KUKA Group’s revenues result from the sale of robots and automation solutions for a wide range of industrial and healthcare sectors. Revenues are recognized upon fulfillment of the performance obligation, for example, when control is transferred to the customer. When the contractual performance obligation is fulfilled, this portion is recognized as revenue over time or at a point in time. In order to determine a percentage of completion for over-time accounting, for example, it must be possible to determine the costs associated with the sale sufficiently reliably. In the case of point-in-time performance, the invoice is usually issued after the performance obligation has been fulfilled. In the case of performance over time, invoicing is linked to the achievement of milestones. Performance obligations with regard to returns, refunds, obligations exceeding statutory guarantees and similar obligations are of secondary importance for 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. If the right to consideration is unconditional, a contract asset becomes a trade receivable. This is the case if the due date of the consideration is only dependent on the passage of time. Impairment of contract assets is measured, recognized and disclosed on the same basis as for financial assets within the scope of IFRS 9. Further information can be found in the section “Financial instruments”. KUKA Group applies industry-standard payment terms when invoicing. 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, as well as write-downs of inventories 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, whereby the cost of acquisition is determined by reference to the fair values of the assets and liabilities involved at the date of acquisition. The agreed contingent consideration is recognized 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. Gains and losses arising are subsequently recognized in proportion to the interest held without limitation.

Investments in associates and joint ventures

Investments in associates and joint ventures are initially recognized at cost. For subsequent measurement, which is carried out in accordance with the equity method, IAS 28 is applicable. The results of associates are recognized in a separate item of the income statement.

Goodwill

Goodwill is tested for impairment in the fourth quarter of each fiscal year or whenever there are indications of impairment. For this, the carrying amount of the respective cash generating units (CGUs) is compared with 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. An impairment loss recognized for goodwill may not be reversed.

For 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 explanations under note 7.

Self-developed software and other development costs

When all the requirements of IAS 38 have been cumulatively met, the direct and indirect costs directly attributable to the development process are capitalized.

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 according to the consumption of its value. Development projects that have not yet been completed but have already been capitalized are tested for impairment as part of the impairment test for goodwill.

Research and development costs that are not eligible for capitalization are recognized as expenses.

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 one to five years using the straight-line method.

Property, plant and equipment

The balance sheet item of property, plant and equipment comprises the respective acquisition or production cost less accumulated depreciation and impairment losses. The straight-line depreciation method that is generally applied is subject to ongoing evaluation.

The following table shows the useful economic lives, unchanged from the previous year, on which scheduled depreciation is generally based. The actual useful lives may vary due to contractual, regional or time-related circumstances:

	Years
Land and buildings	20 – 50
Technical plant and equipment	2 – 15
Factory and office equipment	2 – 15

If the carrying amount of an asset in the balance sheet exceeds its recoverable amount, an impairment loss is recognized in accordance with IAS 36. This is done in the context of an impairment test, which is performed as soon as impairment indicators are identified (a so-called triggering event). 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.

Investment property

Investment property is property held for the purpose of earning rentals and/or for capital appreciation and is not owner-occupied or held for sale in the ordinary course of business. Investment property includes undeveloped land, buildings and/or parts of buildings. Right-of-use assets from leased developed and undeveloped land, as well as from leased residential and commercial real estate (interim leases) as defined by IFRS 16, may also meet the definition of investment property.

Investment property is measured at cost on acquisition or construction. Subsequent measurement in KUKA Group is at amortized cost. The useful economic life on which scheduled straight-line depreciation is based is 20 years for investment property.

Borrowing costs and qualifying assets

In accordance with IAS 23, financing costs must be recognized for so-called qualifying assets. 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 and internally-generated intangible assets.

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 received, government grants are recognized. 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 a lessee, KUKA Group generally recognizes all leases in the balance sheet in accordance with IFRS 16, with the exception of the existing relief regarding short-term leases (maximum term twelve months) and leases of assets with a low original price (max. €5,000). The regular payments for leases subject to relief are recognized as an expense in the income statement. The right of use that is granted under the lease is recognized by the lessee at the present value of the future lease payments and an associated lease liability. Discounting is carried out using the interest rate on which the lease is based, insofar as this can be determined. If this is not possible, the incremental borrowing rate is applied. The incremental borrowing rate is calculated dependent on the lease term and the currency in which the lease is concluded, among other things.

In subsequent measurement, the right-of-use asset is amortized on a straight-line basis over the shorter of the lease term and the economic benefit. The lease liability is reduced by the repayment component.

If KUKA Group acts as lessor and 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 resulting interest income is recognized as income. Impairment of lease receivables is measured, recognized and disclosed on the same basis as for financial assets within the scope of IFRS 9. Further information can be found in the section “Financial instruments”.

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 in the income statement over the term of the lease. The asset is amortized in accordance with the applicable standard, if necessary.

Financial instruments

A financial instrument is any contract that gives rise to both a financial asset of one entity and a financial liability or equity instrument of another entity.

(i) Recognition and initial measurement

Financial instruments are recognized as soon as KUKA Group becomes a party to the contractual provisions of the financial instrument. In the case of standard market purchases or sales, the settlement date is relevant for initial recognition and derecognition.

A financial asset (other than a trade receivable without a significant financing component) or financial liability is measured initially at fair value. For an item that is not measured at fair value through profit or loss, transaction costs that are directly attributable to its acquisition or issue are added or deducted. Trade receivables without a significant financing component are initially measured at the transaction price.

(ii) Classification and subsequent measurement

Financial assets

Depending on the business model and the structure of contractual cash flows, financial assets are classified in the categories “at amortized cost”, “at fair value through other comprehensive income” or “at fair value through profit or loss”.

Thus, a financial asset in KUKA Group is classified and measured upon initial recognition as follows:

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

Financial assets are not reclassified after initial recognition unless KUKA Group changes its business model for managing financial assets. In this case, all affected financial assets are reclassified on the first day of the reporting period following the change of business model.

KUKA Group recognizes a financial asset measured at amortized cost if both of the following conditions are met:

- The financial asset is held as part of a business model whose objective is to hold financial assets for the collection of contractual cash flows
- and the contractual terms of the financial asset give rise to cash flows at specified times that are solely repayments and interest payments on the outstanding principal.

On initial recognition of an equity investment that is not held for trading purposes, the Group may irrevocably elect to disclose subsequent changes in the fair value of the investment under other comprehensive income. This choice is made on a case-by-case basis for each investment.

All financial assets that are not measured at amortized cost or FVOCI are measured at FVtPL. This includes all derivative financial assets. On initial recognition, the Group may irrevocably elect to designate financial assets that otherwise meet the requirements for measurement at amortized cost or as debt instruments in the FVOCI category as FVtPL if doing so results in the elimination or significant reduction of accounting mismatches that would otherwise arise. KUKA Group does not make use of the fair value option.

Transfers of financial assets to third parties that do not result in derecognition are consistent with the Group continuing to account for the assets and, accordingly, holding them under the “sell” business model and classifying them in the FvtPL category. This concerns specific trade receivables that are subject to factoring agreements. Financial assets in the FVtPL category are subsequently measured at fair value. Changes in value, including any interest or dividend income, are recognized in profit or loss.

Financial assets in the AC category are subsequently measured at amortized cost using the effective interest method. The amortized cost is reduced by impairment losses. Interest income and/or expenses, exchange rate effects, impairments and effects from derecognition are recognized in profit or loss. This mainly includes trade receivables held under the “hold” business model, rental deposits and current securities.

Equity instruments in the FVOCI category are subsequently measured at fair value. Dividends are recognized as income in profit or loss. Other changes in value are recognized in other comprehensive income and never reclassified to profit or loss, where appropriate within other comprehensive income. This mainly includes other investments classified as FVOCI.

KUKA Group applies a default definition of 180 days past due for a receivable, which is generally written off at 100% in the event of default, although deviations from this are permitted in justified exceptions. For the value adjustments of financial assets (excluding lease receivables, trade receivables and contract assets), KUKA Group in principle applies the general approach described in IFRS 9. The amount of the value adjustment is measured at initial recognition based on the expected 12-month credit loss, which corresponds to level 1. If there are indications as at the balance sheet date that the default risk has increased significantly since initial recognition, the value adjustment is calculated in the amount of the expected credit losses over the term of the loan (level 2). An indicator that a default risk has increased significantly is if the debtor no longer meets its short-term payment obligations or if there are signs of a deterioration in the debtor’s business performance.

For the aforementioned exceptions, the simplified approach according to IFRS 9 is applied. The amount of the value adjustment for lease receivables, trade receivables and contract assets is based on the expected credit losses over the entire term. It is irrelevant for allocation to level 2 whether the credit risk has increased since initial recognition.

Level 3 comprises financial assets that are credit-impaired at the balance sheet date due to the existence of objective indications, but which were not yet credit-impaired when they were initially recognized. The value adjustment is then recognized in the amount of the credit losses expected to be incurred over the term. KUKA Group views customer insolvencies as objective indications of value adjustment. Payments that are more than 90 days past due are also included in the analysis.

Among other things, current data relating to rating classes or historical default rates (provision matrix) are used for determining the risk provision. Forward-looking, publicly available information on macroeconomic factors and insolvency forecasts are also taken into account here. The default risk is reviewed and the default rates are updated once each year.

Default risks are taken into account using historical default rates in the area of trade receivables and contract assets. At the portfolio level, particularly in the case of business with major customers in the automotive sector, value adjustments are subject to separate credit rating monitoring. This credit rating monitoring is ensured by means of regular updates of credit default swaps. The same applies to value adjustment in the area of receivables from finance leases.

Financial liabilities

Financial liabilities are classified and measured at amortized cost or fair value through profit or loss (FVtPL). A financial liability is allocated to FVtPL if it is classified as held for trading purposes, is a derivative, or is designated as FVtPL upon initial recognition. KUKA Group does not make use of the fair value option.

Financial liabilities at FVtPL are measured at fair value, and changes in value, including interest expenses, are recognized in profit or loss. This includes derivative financial instruments with negative fair values.

Other financial liabilities are subsequently measured at amortized cost using the effective interest method. Interest expenses and foreign currency translation differences are recognized in profit or loss. Gains or losses on derecognition are also recognized in profit or loss. KUKA Group subsumes, for example, financial liabilities or liabilities to affiliated companies within this category.

(iii) Derecognition

Financial assets
KUKA Group derecognizes a financial asset when

- its contractual rights to cash flows from the financial asset expire, or
- it transfers its right to receive contractual cash flows to a transaction in which either:
  - essentially all the risks and rewards of ownership of the financial asset are transferred, or
  - if the Group neither transfers nor retains essentially all the risks and rewards of ownership and does not retain control of the transferred asset.

Financial liabilities
A financial liability is derecognized when the contractual obligations are fulfilled, canceled or have expired. Furthermore, a financial liability is also derecognized if its contractual terms are modified and the cash flows of the adjusted liability are significantly different. In this case, a new financial liability is recognized at fair value based on the adjusted terms. On derecognition of a financial liability, the difference between the carrying amount of the liability extinguished and the amount paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

(iv) Balancing

KUKA Group only offsets financial assets and financial liabilities if it is legally enforceable to offset the recognized amounts at this point in time. Moreover, it must be intended that the adjustment be made on the basis of the net amount. If offsetting is excluded, the financial assets and liabilities are presented in the balance sheet at their gross amount.

(v) Derivatives

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 cash flow risks. Derivative financial instruments are used in particular to hedge currency fluctuations.

In KUKA Group, all derivative financial instruments are recognized at fair value as at the trading date. Subsequent measurement is also at fair value. 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).

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.

Cash and cash equivalents

Cash and cash equivalents comprise liquid funds, namely cash on hand, checks and cash balances with financial institutions, and are measured at amortized cost. Cash and cash equivalents are short-term, highly liquid financial instruments that are subject to an insignificant risk of changes in value. Cash equivalents serve the purpose of meeting payment obligations. For this reason, a financial asset can generally only be considered a cash equivalent if it has a maturity of three months or less from the date of acquisition. The relevant date for the remaining time to maturity is the date of acquisition.

If cash or cash equivalents cannot be defined as current (maturity of more than three months from the acquisition date) and are not highly liquid due to certain restrictions (so-called restricted cash), the accounting treatment is based on various special rules. For example, seized or frozen bank accounts or funds deposited in escrow accounts are considered restricted.

Financial investments

In KUKA Group, other investments in continuing business units that are not material to the net assets, financial position and performance of the Group are classified in the FVtPL or FVOCI category and measured at fair value if this can be reliably determined.

Investments measured at equity

Investments measured at equity are accounted for in KUKA Group using the equity method. The starting point is the cost of the shares at the time of acquisition. Subsequently, the carrying amount of the investment is increased or reduced by the pro rata earnings and other changes in equity.

Inventories

In accordance with IAS 2, KUKA Group capitalizes and measures existing inventories at the lower of cost and current purchase price 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

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.

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 the pensions and vested benefits known at the balance sheet date are taken into account with this method, but also expected future increases in salaries and pensions. The calculation is based on actuarial reports prepared annually under consideration of biometric accounting principles. 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 in the plan, this is recognized directly in profit or loss in the period. 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 using a separate interest rate in the same way as 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.

A provision for restructuring measures is only recognized if the general requirements and those of IAS 37.72 are cumulatively met beforehand. According to IAS 37.72, a detailed, formal restructuring plan must additionally be drawn up and communicated to the persons affected. 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 held for sale and liabilities directly associated with assets classified as 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

A small number of people participate in the employee share program of Midea Group. Settlement is effected by means of equity instruments of Midea Group. The fair value at the date share-based payment arrangements are granted to employees is recognized as an expense with a corresponding increase in equity over the period in which the employees become unconditionally entitled to the awards. The amount recognized as an expense is adjusted to reflect the number of awards for which the relevant service conditions and non-market performance conditions are expected to be met, so that the final amount recognized as an expense is based on the number of awards that meet the relevant service conditions and non-market performance conditions at the end of the vesting period. For share-based compensation awards with non-vesting conditions, the grant-date fair value is determined by reference to those conditions and no adjustment is made for differences between expected and actual outcomes. The detailed effects of this on the Group are presented under other notes.

The fair value of the amount payable to employees in respect of stock appreciation rights that are settled in cash is recognized as an expense with a corresponding increase in liabilities over the period in which the employees become unconditionally entitled to those payments. The liability is remeasured at each reporting date and at the settlement date based on the fair value of the stock appreciation rights. Any changes in the liability are recognized in profit or loss.

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 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. Assumptions and estimates were used within KUKA Group for the following matters:

- Definition of the scope of consolidation
- Development costs
- Goodwill impairments
- Impairments of brand names with an indefinite useful life
- Deferred tax assets on loss carryforwards
- Impairment losses on 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 the 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.

Midea Group acquired a direct 50% stake in each of two Chinese companies of KUKA Group. The originally fully consolidated Swisslog company is accounted for as a 50% at-equity investment due to the legal structure of the control structure, whereas the second Swisslog Healthcare subsidiary is fully consolidated with a 50% minority interest due to its control structure.

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.

Valuation allowances on trade receivables

The valuation allowance on receivables includes, to a significant extent, estimates and assessments of individual receivables based on the creditworthiness of the respective customer, current economic developments 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.

Contract assets and contract 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.

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

In fiscal 2022, KUKA Group took the following revised standards into account in the consolidated financial statements for the first time:

› Amendments to IFRS 3, IAS 16, IAS 37 and Annual Improvements 2018 – 2020

Amendments to IFRS 3, IAS 16, IAS 37 and Annual Improvements 2018 – 2020

Mit der The amendment to IFRS 3 updates the reference in IFRS 3 to the IFRS framework to refer to the framework updated in 2018. At the same time, minor adjustments were made to IFRS 3 to ensure that no material changes result from the above-mentioned reference adjustment. Furthermore, IFRS 3 has been amended to include an explicit prohibition on the recognition of acquired contingent assets.

In accordance with IAS 16, the acquisition or production costs of an item of property, plant and equipment include all directly attributable costs incurred in bringing the item to its location and putting it into an operational state. For example, test runs to verify the proper functionality of the item of property, plant and equipment are included in these costs. However, the amendment to IAS 16 now prohibits revenue arising, for example, from the sale of samples produced on a test system, from being deducted from the cost of an item of property, plant and equipment. Instead, revenue from the sale of such samples must in future be recognized directly in profit or loss together with the cost of their production. Furthermore, the amendment clarifies the definition of costs for test runs.

IAS 37 defines an onerous contract as a contract in which the unavoidable costs of meeting the obligations under the contract exceed the economic benefits expected to be received by the Company under the contract. The amendment elaborates on the meaning of the “cost of fulfilling a contract”. In this context, all costs directly attributable to the contract are included in the fulfillment costs – for example, additional costs incurred for the fulfillment of the contract (so-called incremental costs, e. g. labor and material costs) and other costs attributable to the fulfillment of the contract (e. g. pro rata allocation of depreciation for property, plant and equipment used for the fulfillment of the contract).

The annual improvements to IFRS from the 2018 – 2020 cycle include the following amendments:

One amendment involves the fees to be included in the so-called 10% test for derecognition of financial liabilities in accordance with IFRS 9. The amendment clarifies that only those costs and fees paid by the Company to the creditor and vice versa or on their behalf are to be included. Costs and fees paid to third parties, on the other hand, may not be included in the 10% test.

Furthermore, the amendment from the annual improvements relates to Illustrative Example no. 13 to IFRS 16. Passages capable of being misunderstood relating to payments by the lessor to the lessee to reimburse expenses for leasehold improvements and their recognition have been deleted from the illustrative example.

Due to amendments to IFRS 1, the annual improvements also affect subsidiaries that apply IFRS for the first time later than their parent company. The amendment extends the existing option to measure assets and liabilities at the carrying amounts previously recognized in the parent company’s consolidated financial statements to include cumulative currency translation differences. This amendment also applies to associates and joint ventures that make use of the option in accordance with IFRS 1.

The amendment also removes the previous requirement in IAS 41 that cash flows for taxes in connection with the measurement of biological assets at fair value should not be taken into account. This aligns the requirements of IAS 41 with the provisions of IFRS 13.

Effects of new accounting standards to be applied as of the 2023 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, 2023 are not expected to have any material impact on the consolidated financial statements.

Standard/Interpretation	Effective date	Planned application by KUKA AG
Amendments to IAS 1: Classification of liabilities	Jan. 1, 2023	Fiscal 2023[1 2]
IFRS 17 – Insurance Contracts	Jan. 1, 2023	Fiscal 2023
Amendments to IFRS 17: Initial Application of IFRS 17 and IFRS 9 – Comparative Information	Jan. 1, 2023	Fiscal 2023
Amendment to IAS 1, IFRS Practice Statement 2 and IAS 8: Accounting Policies, Changes in Accounting Estimates and Errors	Jan. 1, 2023	Fiscal 2023
Amendment to IAS 12: Deferred Taxes Relating to Assets and Liabilities Arising from a Single Transaction	Jan. 1, 2023	Fiscal 2023
Amendment to IFRS 16: Lease Liability in a Sale and Leaseback	Jan. 1, 2024	Fiscal 2024[1]
Amendment to IAS 12: Global minimum tax (pillar 2)	Jan. 1, 2024	Fiscal 2024[1]

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

[2] Proposal by IASB to defer the mandatory date of initial application to January 1, 2024 at the earliest

Global minimum tax (pillar 2)

In December 2021, the OECD published draft guidelines for the introduction of global minimum tax to ensure that the profits of multinational corporations with a total annual sales volume of at least EUR 750 million are taxed at a minimum rate of 15% per country. The EU unanimously agreed in December 2022 to implement the regulations in the form of a directive. The EU directive must be transposed into the national law of the member states by December 31, 2023, so that it applies to fiscal years beginning after that date. Some countries have already published draft legislation on the framework, but German legislation on this directive has not yet been drafted or entered into force.

For KUKA, the new legal framework is to apply from the 2024 fiscal year, as in principle the conditions for application have been met. KUKA AG is currently assessing the potential future impact of the regulations on the Group, including the impact on current taxes and tax payments.

Explanation of items in the financial statements

Notes to the Group income statement

1. Sales revenues

KUKA Group recognizes sales revenues when a performance obligation has been fulfilled, for example, through the transfer of promised goods to the customer or a service rendered. With the sale of products such as industrial robots, the performance obligation is fulfilled at a specific point in time. KUKA Group also provides services over time, for example in the context of construction contracts. In these, the performance obligations are fulfilled over a specific period of time. In the case of predominantly downstream services, performance takes place both over a period of time and at a specific point in time.

The breakdown of revenues by region, based on the regional allocation of the subsidiaries, and also by segment is presented below.

The anticipated sales revenues from the existing order backlog of €2,912.4 million (2021: €2,311.9 million) are expected to be recognized in the following periods:

in € millions	2021	2022
Anticipated sales revenues from the existing order backlog	2,311.9	2,912.4
(of which, not later than one year)	(1,380.1)	(2,301.6)
(of which, later than one year)	(931.8)	(610,8)

No use has been made of the exemption provided for in IFRS 15.121. Estimated amounts of variable consideration, which may only be recognized under certain conditions, are not included in the expected sales revenues.

The total transaction price allocated to unfulfilled (or partially unfulfilled) performance obligations as at December 31, 2022 is approximately 2.3% of the existing order backlog.

	EMEA		Americas		APAC		Group	
in € millions	2021	2022	2021	2022	2021	2022	2021	2022
Services provided over a period of time	656.1	793.4	1,002.4	1,080.5	266.6	358.2	1,925.1	2,232.1
Services provided at a specific point in time	723.2	764.8	172.8	226.5	465.1	673.6	1,361.1	1,664.9
Total	**1,379.3**	**1,558.2**	**1,175.2**	**1,307.0**	**731.7**	**1,031.8**	**3,286.2**	**3,897.0**

	Systems		Robotics		Swisslog		Swisslog Healthcare		China		Corporate Functions/ Consolidation		Group	
in € millions	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Services provided over a period of time	901.4	996.1	193.7	56.0	592.4	698.9	190.3	224.3	205.1	276.5	-157.8	-19.7	1,925.1	2,232.1
Services provided at a specific point in time	76.9	92.0	827.1	1,051.2	58.5	72.1	14.7	15.9	383.9	605.1	0.0	-171.4	1,361.1	1,664.9
Total	**978.3**	**1,088.1**	**1,020.8**	**1,107.2**	**650.9**	**771.0**	**205.0**	**240.2**	**589.0**	**881.6**	**-157.8**	**-191.1**	**3,286.2**	**3,897.0**

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	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Cost of materials	1,801.0	2,198.3	5.7	6.3	19.1	19.8	6.7	7.1	1,832.5	2,231.5
Personnel expenses	617.8	712.0	158.8	180.5	113.2	144.2	155.6	177.3	1,045.4	1,214.0
Depreciation and amortization	52.3	53.7	15.4	14.9	35.2	33.4	37.3	30.7	140.2	132.7
Other expenses and income	118.4	123.0	105.0	110.9	-7.9	-26.2	-2.9	-0.1	212.6	207.6
Total	**2,589.5**	**3,087.0**	**284.9**	**312.6**	**159.6**	**171.2**	**196.7**	**215.0**	**3,230.7**	**3,785.8**

Across all functional areas, there was a 17.2% increase in fiscal 2022 (2021: 20.5% increase). The cost of sales increased from €2,589.5 million in 2021 to €3,087.0 million in 2022 due to the higher revenue volume. The higher use of materials and the increased procurement prices resulted in an increased cost of materials within the cost of sales. Within the cost of sales, foreign currency gains of €47.0 million (2021: €31.5 million) and losses of -€51.7 million (2021: -€39.0 million) from operational foreign currency transactions are recognized under other expenses and income. This also includes effects from the derivatives used to hedge the operational foreign currency risks.

Selling expenses rose by €27.7 million year on year. Both the higher personnel expenditure and the other expenses had an increasing effect.

Research and development costs also increased. The increase is particularly noticeable in the area of personnel costs, which is attributable to the fact that KUKA Group places a high priority on research and development activities. Amortization of research and development costs included impairment losses of €6.8 million (2021: €6.0 million) for projects no longer pursued. Amortization of interest on borrowings capitalized in prior years remained virtually unchanged (2022: €0.4 million; 2021: €0.3 million). The increase in other income was related to, among other things, subsidies received.

Administrative expenses increased year on year, due largely to increased personnel expenditure. Among other things, KUKA invested in various projects to optimize internal processes. On the other hand, there was a decrease in amortization. The administrative projects that were no longer pursued, such as an IT project and a site expansion project, were written off on an unscheduled basis (2022: €0.0 million; 2021: €4.6 million).

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

in € millions	2021	2022
Wages and salaries	856.3	973.4
Social security payments and contributions for retirement benefits and provident funds	189.1	240.6
(of which, for retirement benefits)	(28.7)	(33.4)
Personnel expenses	**1,045.4**	**1,214.0**

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			
	2021	2022	Total 2021	Total 2022	of which, Germany	of which, abroad
Manufacturing	9,302	9,647	9,478	10,004	2,630	7,374
Sales	1,519	1,578	1,517	1,651	534	1,117
Administration	1,499	1,437	1,495	1,422	563	859
Research and development	1,245	1,554	1,302	1,611	551	1,060
	13,565	**14,216**	**13,792**	**14,688**	**4,278**	**10,410**
Apprentices	259	267	289	303	219	84
Student trainees	42	61	47	73	43	30
Total	**13,866**	**14,544**	**14,128**	**15,064**	**4,540**	**10,524**

3. Other operating income and expenses

The other operating income and expenses include income and expenses that are not allocated to any of the functional areas (cost of sales, selling expenses, research & development, general and administrative expenses) or reported in another, separate item. Other operating income grew by €2.6 million in fiscal 2022 to €17.5 million (2021: €14.9 million). This included income from the sale of certain assets of a subsidiary in Belgium. Furthermore, other operating income includes grants, special discounts and income from settlement agreements. Other operating expenses also increased by -€2.7 million from -€9.3 million in 2021 to -€12.0 million in 2022. These mainly included losses in connection with the subsidiary to be sold in Russia in the category "held for sale" (see note 28) and other taxes (2022: €5.8 million; 2021: €5.6 million).

4. Financial result

The financial result, comprising financial expenses and financial income, showed income of €8.0 million in the year under review. This corresponds to a decrease of €5.5 million on the previous year (December 31, 2021: €13.5 million).

in € millions	2021	2022
Gains from changes in the fair value of financial instruments	**4.0**	**3.2**
Losses from changes in the fair value of financial instruments	**-0.2**	**-0.7**
Interest income from finance leases	11.2	10.0
Remaining interest and similar income	15.9	14.7
Interest and similar income	**27.1**	**24.7**
Interest component for allocations to pension provisions	-0.6	-0.8
Guarantee commissions	-1.4	-1.4
Interest expense for promissory note loans	-6.6	-4.0
Interest expense for inter-company loans	-1.6	-3.9
Activated financing costs	0.2	0.3
Interest expenses IFRS 16	-5.2	-5.4
Other interest and similar expenses	-4.0	-6.7
Interest and similar expenses	**-19.2**	**-21.9**
Foreign currency gains	**45.6**	**80.0**
Foreign currency losses	**-43.8**	**-77.3**
Financial result	**13.5**	**8.0**

The result from changes in the fair value of financial instruments decreased from €3.8 million in the previous year to €2.5 million in fiscal 2022. In the previous year, the change in value was due, among other things, to the proceeds from the sale of the shares in Servotronix Motion Ltd., Israel. The ongoing changes in the fair value of interest rate swaps had a positive effect in both fiscal years.

Interest income in the year under review decreased from €27.1 million in the previous year to €24.7 million and mainly comprised interest income from finance leases (2022: €10.0 million; 2021: €11.2 million) at KTPO and interest income on bank balances.

Interest expenses rose slightly from -€19.2 million in 2021 to -€21.9 million in 2022. The net interest component of pension provisions and the interest expenses for IFRS 16 were up year on year. The guarantee commissions remained unchanged. Interest expenses for the promissory note loan were also lower (2022: -€4.0 million; 2021: -€6.6 million) due to repayments made. Both interest expenses for the inter-company loan from Midea Group and other interest and similar expenses increased year on year. Please refer to note 26 for more detailed information on the promissory note loan, the guarantees and the inter-company loan.

The foreign currency gains rose from €45.6 million in the previous year to €80.0 million. Of these, gains from derivatives amounted to €42.6 million (2021: €21.7 million). The foreign currency losses also increased from -€43.8 million in the previous year to -€77.3 million. The foreign currency losses from derivatives were at -€47.7 million (2021: -€22.1 million).

5. Taxes on income

Tax expense

Income tax expense breaks down by origin as follows:

in € millions	2021	2022
Current taxes	-8.1	-91.4
(of which, relating to other periods)	(15.9)	(-4.7)
Deferred tax income (prior year: deferred tax expenses)	-17.8	66.5
(of which, from temporary differences)	(-14.2)	(55.0)
(of which, from loss carryforwards)	(-3.6)	(11.5)
Tax expense	**-25.9**	**-24.9**

Of the current expenses for tax on earnings, -€5.1 million is attributable to domestic expenditure (2021: -€3.2 million) and -€86.3 million to foreign expenditure (2021: -€4.9 million). Current tax expense relating to other accounting periods totaling -€4.7 million (2021: income of €15.9 million) was incurred in German and foreign operations.

Deferred tax expenses relate to Germany in the amount of -€13.2 million (2021: expense of -€21.2 million) and deferred tax income relates to other countries in the amount of €79.7 million (2021: income of €3.4 million). The deferred tax income results from temporary valuation differences, mainly from other countries, amounting to €81.4 million and from loss carryforwards from Germany amounting to -€13.2 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	2021	2022
Earnings before tax expense	**75.3**	**126.3**
Expected tax expense	**-24.0**	**-40.4**
Tax rate-related differences	16.9	22.6
Tax reductions due to tax-exempt income	29.2	39.7
Tax increases due to non-deductible expenses	-9.1	-9.0
Tax expenses (-)/tax income (+) for prior years	10.5	-0.8
Change in allowance on deferred taxes	-51.1	-37.9
First-time recognition of previously unrecognized deferred tax assets on tax loss carryforward	1.8	8.8
Change in permanent differences	2.9	-3.0
Tax impact of investments accounted for by the equity method	0.2	0.5
Effects resulting from tax rate changes	0.2	0.3
Tax effect due to non-creditable withholding taxes	-3.1	-5.9
Other differences	-0.3	0.2
Taxes on income (actual tax expense)	**-25.9**	**-24.9**

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.

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, 2021	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022
Non-current assets	80.7	143.2	101.1	97.5
Current assets	56.6	74.1	65.1	65.5
Provisions	66.0	24.2	19.2	17.6
Liabilities	63.9	62.0	34.4	40.1
Subtotal	**267.2**	**303.5**	**219.8**	**220.7**
Balancing item	-198.4	-197.5	-198.4	-197.5
Deferred taxes on temporary differences	**68.8**	**106.0**	**21.4**	**23.2**
Deferred taxes on tax loss carryforwards	27.0	43.7	–	–
Total	**95.8**	**149.7**	**21.4**	**23.2**
(of which, from items recognized in equity)	(9.6)	(1.9)	(-0.2)	(2.3)

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 are no longer expected to be realized. No deferred taxes were recognized on temporary differences amounting to €196.7 million (2021: €126.6 million).

In the loss carryforwards of €881.1 million (2021: €846.4 million), loss carryforwards amounting to €729.1 million (2021: €726.0 million) are not considered in the accounting of deferred taxes, which can for the most part be utilized indefinitely. An amount of €147.0 million from unrecognized loss carryforwards (2021: €136.0 million) will expire by 2028 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, 2021	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022
Swisslog (Deutschland) GmbH, Dortmund	–	–	81.7	95.2
KUKA Industries GmbH & Co. KG, Obernburg	–	–	118.1	132.6
KUKA Aktiengesellschaft, Augsburg	60.6	118.4	314.9	261.9
Other	59.8	33.6	331.7	391.4
Total	**120.4**	**152.0**	**846.4**	**881.1**

Existing loss carryforwards totaling €391.4 million (2021: €331.7 million) and summarized under "Other" originate in the amount of €79.6 million (2021: €55.2 million) from China and in the amount of €176.9 million (2021: €122.2 million) from Switzerland. Of the loss carryforwards from China and Switzerland, loss carryforwards amounting to €23.8 million (2021: €29.1 million) have been used for the accounting of deferred tax assets, for which deferred tax assets of €3.5 million (2021: €5.1 million) have been recognized. The remaining loss carryforwards originate from different countries and are not material in each case.

Deferred tax income in the amount of €8.8 million (2021: €1.8 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. In the fiscal year, the valuation adjustment of deferred tax assets on loss carryforwards and on temporary differences totaling €37.9 million (2021: -€51.1 million) had an effect on profit or loss.

Where deferred tax assets have not been impaired, it is generally expected, on the basis of a risk-adjusted and at the same time reliable planning horizon, that this tax-reducing potential will be utilized via taxable income, which is likely based on the expectations of Group companies. Planning uncertainty is accounted for by risk discounts on the tax planning calculations that increase over time.

As at the balance sheet date, the Group companies which had generated a tax loss in the current or prior period reported a net surplus of deferred tax assets totaling €57.6 million (2021: €96.5 million), mainly resulting from the German tax group of KUKA AG.

The Group companies of the German tax group generated tax losses in previous years, which led to a partial non-recognition of deferred tax assets in the past year. As a result of tax structuring carried out in 2021, future taxable income in the German tax group is planned. To the extent that the planned profits are probable within the meaning of IAS 12, deferred tax assets are recognized in the balance sheet.

For companies with a history of losses, deferred tax asset surpluses are not recognized unless there is convincing evidence of future taxable profits.

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 €45.8 million (2021: €36.5 million).

Overall, the change in the balance of deferred tax assets and liabilities of €52.1 million (2021: -€19.3 million) comprises amounts affecting net income totaling €66.5 million (2021: -€17.8 million) and changes in deferred taxes not affecting net income, primarily relating to pension obligations, amounting to -€10.1 million (2021: -€2.0 million). There is no effect from deconsolidation (2021: €0.0 million), but there is an effect from the initial accounting for newly acquired fully consolidated companies amounting to -€1.4 million (2021: €0.0 million). There were also relevant foreign exchange effects amounting to -€2.9 million (2021: €0.5 million).

6. Earnings per share

Undiluted/diluted earnings per share are as follows:

	2021	2022
Earnings after taxes attributable to KUKA AG (in € millions)	39.0	88.1
Weighted average number of shares outstanding (no. of shares)	39,775,470	39,775,470
Diluted/undiluted earnings per share (in €)	**0.98**	**2.21**

In accordance with IAS 33, undiluted earnings per share are calculated from the earnings due to 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 as at the balance sheet date (December 31, 2021: 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 2022

in € millions	Acquisition/manufacturing costs							Accumulated depreciation and impairment losses						Net carrying amount
	Status as of Jan. 1, 2022	Exchange rate differences	Additions	Disposals	Change due to business combinations/others	Reclassifications	Status as of Dec. 31, 2022	Status as of Jan. 1, 2022	Exchange rate differences	Additions	Disposals	Reclassifications	Status as of Dec. 31, 2022	Status as of Dec. 31, 2022
1. Licenses and other rights	328.1	6.7	4.7	-15.6	6.4	5.5	335.8	226.7	4.7	23.5	-15.6	–	239.3	96.5
2. Self-developed software and other development costs	190.0	6.1	31.6	-3.1	–	-4.6	220.0	79.2	3.4	26.1	-3.1	–	105.6	114.4
3. Goodwill	331.8	10.5	–	–	7.1	–	349.4	8.6	–	–	–	–	8.6	340.8
4. Advances paid and construction in progress	0.9	–	2.0	–	–	-0.9	2.0	–	–	–	–	–	–	2.0
	850.8	**23.3**	**38.3**	**-18.7**	**13.5**	**–**	**907.2**	**314.5**	**8.1**	**49.6**	**-18.7**	**–**	**353.5**	**553.7**

Schedule of changes in intangible fixed assets in 2021

in € millions	Acquisition/manufacturing costs							Accumulated depreciation and impairment losses						Net carrying amount
	Status as of Jan. 1, 2021	Exchange rate differences	Additions	Disposals	Change due to business combinations/others	Reclassifications	Status as of Dec. 31, 2021	Status as of Jan. 1, 2021	Exchange rate differences	Additions	Disposals	Reclassifications	Status as of Dec. 31, 2021	Status as of Dec. 31, 2021
1. Licenses and other rights	303.1	10.5	7.7	-3.0	–	9.8	328.1	191.1	5.6	25.1	-1.3	6.2	226.7	101.4
2. Self-developed software and other development costs	159.7	5.9	31.3	-6.9	–	–	190.0	55.1	2.6	28.4	-6.9	–	79.2	110.8
3. Goodwill	321.8	10.0	–	–	–	–	331.8	8.6	–	–	–	–	8.6	323.2
4. Advances paid and construction in progress	9.7	0.1	0.9	–	–	-9.8	0.9	6.2	–	–	–	-6.2	–	0.9
	794.3	**26.5**	**39.9**	**-9.9**	**–**	**–**	**850.8**	**261.0**	**8.2**	**53.5**	**-8.2**	**–**	**314.5**	**536.3**

KUKA Group recognized brands in the amount of €26.2 million (2021: €24.9 million), which are always subject to an impairment test when a triggering event occurs, but at least once a year. The calculation is based on the value in use. The result of the impairment test for the 2022 fiscal year did not indicate any need for impairment, thus confirming the recoverability of the residual carrying amount. The carrying amounts of the brand names allocated to the cash generating units (CGUs) Swisslog and Healthcare were respectively €15.4 million (2021: €14.7 million) and €8.8 million (2021: €8.4 million). The year-on-year changes in the carrying amount relate primarily to scheduled depreciation, currency effects and the addition in connection with the acquisition of Delfoi Robotics Oy.

Goodwill

Goodwill amounted to €340.8 million in the year under review (2021: €323.2 million). The increase in goodwill related partly to currency effects and partly to the addition in connection with the acquisition of Delfoi Robotics Oy. The allocation of goodwill to the cash generating units (CGUs) listed below corresponded to the current segment structure. The pre-tax discount rate (weighted average cost of capital (WACC)) used at CGU level is also presented below.

	Dec. 31, 2021		Dec. 31, 2022	
in € millions	Goodwill	WACC (%)	Goodwill	WACC (%)
Systems	27.7	9.6	28.0	10.6
Robotics	69.2	11.8	76.4	13.9
Swisslog	132.1	9.2	138.5	10.8
Swisslog Healthcare	59.3	7.1	62.1	7.2
China	34.9	11.2	35.8	12.9
Total	**323.2**		**340.8**	

The impairment test carried out in the current year under review, which was again performed as at September 30, was based on a three-year detailed planning period and a further period of two years in which strategic planning was applied. Together with the market-specific growth rate of 2.0%, these five years formed the basis for calculating the perpetuity.

In the context of determining the pre-tax discount rate (weighted average cost of capital (WACC)), the cost of equity capital and borrowing costs were determined on the basis of segment-specific peer groups. These companies had similar activity and product portfolios to KUKA Group and thus comprise the most important national and international competitors. 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 two years.

The tax rates used per segment ranged between 20.9% and 25.0% (Systems CGU: 20.9% (2021: 21.0%); Robotics CGU: 23.8% (2021: 27.6%); Swisslog CGU: 21.1% (2021: 26.4%); Swisslog Healthcare CGU: 24.9% (2021: 27.6%); China CGU: 25.0% (2021: 25.0%)).

The market risk premium for the respective CGUs was one of the most important components in the WACC calculation. A market risk premium of 7.00% was applied in all business segments, as in the previous year. The beta factor determined as a two-year average of the respective peer group amounted to 1.081 (2021: 1.099) for the Systems CGU, 1.199 (2021: 1.23) for the Robotics CGU, 1.142 (2021: 1.075) for the Swisslog CGU, 0.678 (2021: 0.866) for the Swisslog Healthcare CGU and 1.217 (2021: 1.068) for the China CGU. 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.

Self-developed software and other product development costs

Research and development expenses increased from €159.6 million in 2021 to €171.2 million in 2022. IAS 38 stipulates that costs for self-developed software and other product developments must be capitalized if relevant criteria are met. 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 1.26% (2021: 1.46%).

The business segments are working – depending on their focus – on various projects relating to mechanical systems as well as power and control software for robots. In addition, applications for medical technology and automation solutions are being developed or improved. Borrowing costs of €0.3 million were recognized for the 2022 fiscal year (2021: €0.2 million).

As at December 31, 2022, development costs of €114.4 million (2021: €110.8 million) had been capitalized. This corresponds to an increase of €3.6 million compared with the end of fiscal 2021.

At €31.6 million, additions in the year under review were at the prior-year level (2021: €31.3 million).

In the year under review, impairment losses of €6.8 million (2021: €6.0 million) were recognized on intangible assets for projects no longer being pursued.

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 tables. Please refer to the management report for details of the investment focuses.

Schedule of changes in KUKA Group's tangible assets 2022

	Acquisition/manufacturing costs						Accumulated depreciation and impairment losses						Net carrying amount
in € millions	Status as of Jan. 1, 2022	Exchange rate differences	Additions	Disposals	Reclassifications	Status as of Dec. 31, 2022	Status as of Jan. 1, 2022	Exchange rate differences	Additions	Disposals	Reclassifications	Status as of Dec. 31, 2022	Status as of Dec. 31, 2022
1. Land, similar rights and buildings including buildings on land owned by third parties	349.5	0.3	6.9	-6.8	14.9	364.8	116.6	–	13.4	-5.9	–	124.1	240.7
2. Technical plant and equipment	190.7	1.0	14.4	-9.7	4.7	201.1	127.1	0.7	14.6	-8.5	–	133.9	67.2
3. Other equipment, factory and office equipment	189.3	0.7	18.6	-11.9	1.5	198.2	141.6	0.6	19.0	-11.9	–	149.3	48.9
4. Advances paid and construction in progress	28.9	-1.8	43.0	-2.1	-22.2	45.8	4.6	–	–	–	–	4.6	41.2
	758.4	**0.2**	**82.9**	**-30.5**	**-1.1**	**809.9**	**389.9**	**1.3**	**47.0**	**-26.3**	**–**	**411.9**	**398.0**

Schedule of changes in KUKA Group's tangible assets 2021

	Acquisition/manufacturing costs						Accumulated depreciation and impairment losses						Net carrying amount
in € millions	Status as of Jan. 1, 2021	Exchange rate differences	Additions	Disposals	Reclassifications	Status as of Dec. 31, 2021	Status as of Jan. 1, 2021	Exchange rate differences	Additions	Disposals	Reclassifications	Status as of Dec. 31, 2021	Status as of Dec. 31, 2021
1. Land, similar rights and buildings including buildings on land owned by third parties	335.5	9.4	9.7	-5.6	0.5	349.5	102.2	2.3	14.0	-2.0	0.1	116.6	232.9
2. Technical plant and equipment	175.5	4.8	14.1	-7.8	4.1	190.7	117.2	2.8	13.2	-6.1	–	127.1	63.6
3. Other equipment, factory and office equipment	176.0	3.2	15.6	-6.7	1.2	189.3	127.1	2.2	18.0	-5.6	-0.1	141.6	47.7
4. Advances paid and construction in progress	12.6	0.2	22.1	-0.2	-5.8	28.9	–	–	4.6	–	–	4.6	24.3
	699.6	**17.6**	**61.5**	**-20.3**	**–**	**758.4**	**346.5**	**7.3**	**49.8**	**-13.7**	**–**	**389.9**	**368.5**

No impairment losses were recognized on tangible assets in the year under review (2021: €4.6 million). The amount of €1.1 million reported as a reclassification relates to a reclassification to the item "Investment property". In the previous year, no precise plans for subletting were yet available; accordingly, they were reported under advances paid and construction in progress.

Investment property

in € millions	2021	2022
Status as of Jan. 1, 2022	–	–
Additions	–	8.3
Reclassifications from property, plant and equipment (advances paid and construction in progress)	–	1.1
Depreciation and amortization	–	–
Status as of Dec. 31, 2022	**–**	**9.4**

Additions in the year under review 2022 include €8.3 million (2021: €0.0 million) in production costs for new construction activities from 2022. The reclassification from property, plant and equipment relates to advances paid and construction in progress that were already incurred in 2021. In 2021, no precise plans for subletting were yet available; accordingly, they were reported under advances paid and construction in progress. The property was completed at the end of December 2022.

As at December 31, 2022, the fair value corresponds approximately to the recorded carrying amount of the investment property. A valuation by an independent expert, who has a recognized, appropriate professional qualification and current experience with the location and type of property being appraised has not taken place as at December 31, 2022.

The commercial property was leased to third parties under operating leases. Each of the leases initially consists of a non-cancelable period of three years. Subsequent extensions will be negotiated with the lessee. No rental income has yet been generated in 2022. In the future, lease income from operating leases where the Group is the lessor will be recognized in profit or loss on a straight-line basis over the lease term. Receivables in the amount of the minimum lease payments under the leases are as follows:

in € millions	2021	2022
Up to one year	–	1.1
1 – 5 years	–	3.3
More than 5 years	–	–

Government grants

Within KUKA Group, only the gross presentation of government grants in accordance with IAS 20.26 was applied. This means that grant-related payments for an asset may not be deducted from the carrying amount of the asset. Instead of reducing the carrying amount of the asset, the payment is recognized under other liabilities, which is recognized systematically in the income statement over the useful life of the asset. Government grants totaling €32.4 million (2021: €31.7 million) were received and directly released to income. There were no contingently repayable grants as of the balance sheet date. The investment-related payments which are reported under other liabilities amounted to €11.2 million in both fiscal years.

9. Financial investments

No new financial investments were made in the year under review. For further details, please refer to “Events after the balance sheet date”. The following table shows the changes in financial investments by category for the reporting periods ending December 31, 2021 and 2022:

in € millions	FVtPL	FVOCI	Total
Opening balance Jan. 1, 2021	**2.7**	**14.4**	**17.1**
Additions	2.0	–	2.0
Disposals/sales proceeds	–	-16.1	– 16.1
Reclassifications/foreign currency effects	0.3	-0.9	-0.6
Amounts recognized in profit or loss	–	1.2	1.2
Amounts recognized in other comprehensive income	–	1.4	1.4
Balance as at Dec. 31, 2021/ Jan. 1, 2022	**5.0**	**–**	**5.0**
Additions	0.1	–	0.1
Disposals/sales proceeds	-0.6	–	-0.6
Reclassifications/foreign currency effects	0.3	–	0.3
Closing balance Dec. 31, 2022	**4.8**	**–**	**4.8**

10. Investments accounted for at equity

The number of investments accounted for using the equity method remained unchanged. The Group does not apply the disclosures in the notes pursuant to IFRS 12.B12 and B13, as the investments are in themselves of minor importance for KUKA Group. The profit from operating activities recognized in fiscal 2022 was €1.7 million (2021: €0.8 million). The remaining changes resulted from currency effects.

11. Leases

KUKA as a lessor

KUKA Toledo Production Operations LLC., Toledo/USA (KTPO)

KUKA Toledo Production Operations LLC, Toledo, USA (KTPO) manufactures Jeep Gladiator bodies under the terms of a pay-on-production contract with Chrysler. The contract is a finance lease and runs until March 2025. A non-current lease receivable of €65.2 million (2021: €99.7 million) and a current lease receivable of €39.7 million (2021: €31.6 million) existed as at the balance sheet date. Revenues generated from sales of vehicle bodies are reduced by the fictitious lease payment. 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.

At the end of the fiscal year, non-current lease receivables totaled €66.4 million (2021: €100.7 million) and current lease receivables totaled €41.5 million (2021: €32.9 million). Impairment losses on lease receivables in accordance with IFRS 9 remained unchanged as at the balance sheet date (2022: €1.2 million; 2021: €1.2 million). Accordingly, the gross value of the current lease receivable amounted to €42.5 million (2021: €34.1 million). For the reconciliation of the impairment losses, please refer to note 29 d).

Other leases were of minor significance for KUKA Group as at the balance sheet date.

There was no capital gain or loss in either the year under review or the previous year. Financial income on the net investment in the leases amounted to €10.0 million in fiscal 2022 after €11.2 million in the previous year.

The reconciliation to the total present value of the outstanding total minimum lease payments for the existing leases is shown below:

in € millions	2021	2022
Finance lease gross investments	153.1	110.3
(of which, not later than one year)	(47.1)	(48.7)
(of which, later than one year and not later than five years)	(106.0)	(61.6)
Unrealized financial income	19.5	2.4
Present value of outstanding minimum lease payments	**133.6**	**107.9**
(of which, not later than one year)	(32.9)	(41.5)
(of which, later than one year and not later than five years)	(100.7)	(66.4)

KUKA as a lessee

As a lessee, KUKA Group reports buildings, technical equipment, cars and IT hardware, among other items, in its balance sheet. At the balance sheet date, €111.9 million (2021: €114.7 million) in right-of-use assets were capitalized and reported separately in the balance sheet. Additions to right-of-use assets amounted to €33.4 million in the year under review (2021: €35.1 million). The right-of-use assets per existing asset class are shown below:

in € millions	2021	2022
Right-of-use assets for land and buildings	101.3	99.6
Right-of-use assets for technical equipment	11.5	11.1
Right-of-use assets for other factory and office equipment	1.1	0.7
Other right-of-use assets	0.8	0.5
Total	**114.7**	**111.9**

The 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 one and 21 years, with an average of around four years. The depreciation recognized in the respective functional areas totaled €35.6 million in the 2022 fiscal year (2021: €35.9 million). The depreciation amount per asset class is shown below.

in € millions	2021	2022
Depreciation of land and buildings	25.7	27.0
Depreciation of technical equipment	8.8	7.7
Depreciation of other factory and office equipment	0.8	0.5
Other depreciation	0.6	0.4
Total	**35.9**	**35.6**

Total cash outflows from leases recognized in the balance sheet amounted to €39.5 million in fiscal 2022 (2021: €39.9 million). Expenses for short-term leases with a term of less than one year totaled €1.9 million in fiscal 2022 (2021: €3.9 million). The amount incurred for leases for assets with an original price of less than €5,000 each amounted to €0.2 million (2021: €0.2 million).

Expenses for variable lease payments amounting to €27.3 million (2021: €22.5 million) were not included in the valuation of lease liabilities.

There were no sale-and-leaseback agreements in the Group.

KUKA Group expects future cash outflows of €5.1 million (2021: €2.0 million) from agreements already concluded but not yet started. For further details on lease liabilities, please refer to note 25.

The Group has several lease agreements that contain renewal and termination options. These options are negotiated by management in order to manage the portfolio of leased assets flexibly and in line with the Group's respective business requirements.

12. Inventories

in € millions	Dec. 31, 2021	Dec. 31, 2022
Raw materials and supplies	196.9	334.9
Work in process	86.6	152.2
Finished goods	121.9	168.7
Advances paid	40.2	64.0
Inventories	**445.6**	**719.8**

Write-downs relative to gross value increased by €19.9 million to €84.0 million (2021: €64.6 million). Total reversals of impairment losses amounted to €6.8 million in the year under review (2021: €6.1 million). The impairment losses recognized in the China segment amounted to €14.6 million.

13. Trade receivables

Trade receivables increased from €596.9 million in 2021 to €713.4 million. These receivables have a residual term of less than one year.

The following table shows the trade receivables subject to IFRS 9:

in € millions	Not overdue	Less than 31 days	31 to 60 days	61 to 90 days	91 to 180 days	More than 180 days	Gross carrying amount of receivables	Value adjustment for credit-impaired receivables	Value adjustments for non-credit-impaired receivables	Net carrying amount of receivables
As at Dec. 31, 2021	514.2	50.9	16.4	9.3	23.2	10.3	624.3	-10.1	-17.3	596.9
As at Dec. 31, 2022	614.0	72.8	17.6	6.7	11.7	8.5	731.3	-13.2	-4.7	713.4

A loss rate per segment 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 development of the value adjustments for credit-impaired receivables and non-credit-impaired receivables are presented separately and can be found in Note 29 d).

As part of working capital management, KUKA transferred trade receivables in the amount of €34.1 million (2021: €17.0 million) to several banks against liquid funds in December 2022. The KUKA Group receivables in question are assigned to the "sell" business model and are therefore measured at fair value through profit or loss.

14. Contract assets and contract liabilities

As at the end of fiscal year 2022, contract assets amounting to €506.3 million have been capitalized (December 31, 2021: €475.2 million), representing an increase of €31.1 million. Contract liabilities rose by €45.3 million in the reporting period, from €484.8 million in 2021 to €530.1 million in the year under review. Depending on whether KUKA Group has performed the service or whether it has been rendered by the customer, the contract is recognized in the balance sheet as either an asset or a contract liability. The services provided by KUKA Group and the payments made by the customer during the contract term may differ. Accordingly, the change in contractual assets and liabilities is mainly attributable to the fulfillment of performance obligations.

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 significant changes to the contract assets and contract liabilities for the year under review and the previous year are shown below:

	Dec. 31, 2021		Dec. 31, 2022	
in € millions	Contract assets	Contract liabilities	Contract assets	Contract liabilities
Sales revenues included in contractual liabilities at the beginning of the period	–	121.8	–	53.7
Increase due to customer payments received	–	595.4	–	494.3
Reclassification from contractual assets to trade receivables	-333.6	–	-810.1	
Changes due to adjustment of the progress	235.4	51.7	382.1	61.0
Impairments	-3.8	–	-8.8	

In contrast to the previous year, contract costs of €1.0 million were capitalized in fiscal year 2022. In accordance with IFRS 9, an impairment loss of -€9.6 million (2021: -€5.8 million) was recognized for contract assets. As a result, the gross carrying amount of contract assets was €515.9 million (2021: €481.0 million). For the reconciliation of the risk provision for expected default risks on contractual assets, please refer to note 29 d). Contract assets fall into the same risk class as receivables that are not overdue.

15. Other receivables and other assets

in € millions	2021	2022
Residual term over 1 year		
Other financial receivables	1.0	0.9
Other non-financial receivables	0.3	0.3
Assets from overfunded pension plans	–	4.6
Total	**1.3**	**5.8**
Residual term up to 1 year		
Receivables from tax authorities	39.8	53.3
Other financial receivables	126.0	25.5
Other non-financial receivables	45.9	47.4
Total	**211.7**	**126.2**
Other receivables and other assets	**213.0**	**132.0**

The increase in non-current other assets from €1.3 million in 2021 to €5.8 million in 2022 was mainly related to assets from overfunded pension plans. Current other assets decreased from €211.7 million in 2021 to €126.2 million in the year under review. Receivables from tax authorities were up by €13.5 million to €53.3 million in 2022 (2021: €39.8 million) and mainly included sales tax receivables.

In contrast to last year, no investments were made in current securities with a total term of significantly less than one year and reported under other current financial receivables in the year under review.

Furthermore, other current financial receivables include derivatives with a positive fair value, rental deposits and other lendings. Additionally, the category "other non-financial receivables" includes other assets as deferred income in the amount of €24.8 million (2021: €27.4 million).

16. Cash and cash equivalents

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.

For further details please refer to note 26.

The impairment loss on cash and cash equivalents was calculated on the basis of expected losses. No default risk was recognized in the year under review (2021: €0.1 million).

in € millions	Dec. 31, 2021	Dec. 31, 2022
Cash on hand	0.9	0.2
Cash and bank balances	672.3	494.3
Total	**673.2**	**494.5**

Regulatory requirements or local company law provisions in certain countries may restrict the Group's ability to transfer assets to or from other companies within the Group. Cash and cash equivalents are subject to local exchange restrictions in certain countries (for example, China). There, the export of capital from the respective country is generally only possible in compliance with applicable foreign exchange controls. Beyond that, there are no significant restrictions. Bank balances in China totaled €380.7 million in fiscal 2022 (2021: €534.2 million).

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.

18. Subscribed capital

As in the previous year, the Company's share capital amounts to €103,416,222.00 (December 31, 2021: €103,416,222.00) and is divided into 39,775,470 shares outstanding (December 31, 2021: 39,775,470 shares) and no-par value bearer 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.

In accordance with the resolution of the Annual General Meeting, a dividend of €0.11 per share for the 2021 fiscal year was distributed in the year under review, corresponding to a total of €4.4 million. In addition, the share-based compensation under the employee share program of Midea Group is included in the revenue reserves. Further other changes in retained earnings were related to adjustments of the interest rate for inter-company loans.

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), KUKA Robotics Guangdong Co., Ltd, Foshan (China) as well as KUKA Robotics Manufacturing China Co., Ltd., Shanghai (China). The adjustment item for minority interests in equity, which also includes foreign currency effects and the pro rata minority earnings, increased by €6.9 million from €325.3 million in 2021 to €332.2 million in 2022.

The table below shows information on non-controlling interests in total assets and total comprehensive income. The amounts are before intra-Group eliminations.

in € millions	2021	2022
Percentage of non-controlling interests (%)	**50.0**	**50.0**
Non-current assets	503.2	534.4
Current assets	1,000.7	1,158.0
Non-current liabilities	-4.1	-3.0
Current liabilities	-444.8	-618.6
Net assets	**1,055.0**	**1,079.9**
Net assets of non-controlling interests	527.5	540.1
Sales revenues	951.2	1,328.3
Net income	21.1	36.6
Other income	57.4	-15.7
Total comprehensive income	**78.5**	**20.8**
Profit attributable to non-controlling interests	10.3	13.3
Other comprehensive income attributable to non-controlling interests	28.7	-7.9
Cash flow from operating activities	43.6	-121.3
Cash flow from investment activities	-9.9	-26.6
Cash flow from financing activities	22.5	25.4
Foreign currency effects	54.6	1.0
Net increase in cash and cash equivalents	**110.8**	**-121.5**

22. Other reserves

Other reserves increased by €48.9 million to €92.8 million as at the balance sheet date (2021: €43.9 million). On the one hand, exchange rate effects of €20.0 million had a positive impact on equity (2021: €60.9 million). On the other hand, there was a reduction in actuarial losses on pension provisions amounting to €37.1 million and in the deferred taxes on these provisions amounting to -€8.2 million.

23. Pension provisions and similar obligations

Appropriate pension provisions were established for liabilities from vested benefits and 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. Under defined benefit plans, the company incurs an obligation to provide the benefits promised by the plan to current and former employees.

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/widower's pension, death benefits and emergency assistance. New biometric actuarial assumptions (RT 2018G) were published in the 2018 fiscal year, which remain valid for the 2022 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 worker's union before September 14, 2004 are eligible to participate in the pension plan. The benefits are calculated on the basis of the rate applicable on the date they retire. This rate is composed of the years of service credited to the employee. Eligible employees are also provided with medical care. Owing to their benefit character, the obligations for post-employment medical benefits are also disclosed in this item according to IAS 19. These post-employment benefit provisions represent €0.4 million (2021: €0.5 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 foundation (established in 2019), 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 are made by the employer and employees. Responsibility for investing the assets is borne by the respective foundation board, which also sets the interest rate on the individual age tranches – subject to the statutory rules. In the event of a deficit for the Swisslog 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 plans were valued using the projected unit credit method (PUC) and BVG 2020 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. As of 2021, this plan was closed.

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 €58.4 million (2021: €51.6 million) is recognized as an expense in the respective year.

Deferred compensation

Pension provisions of €2.6 million (2021: €2.5 million) were recognized for fiscal 2022 for salary components converted into pension commitments by employees under the deferred compensation model. These provisions were netted against the asset values from the surrender values of the reinsurance. This resulted in a balance sheet amount after netting of €0.0 million (2021: €0.0 million).

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, 2022	Germany	Switzerland	UK	Sweden	USA	Other
Demographic assumptions	RT 2018G	BVG 2020 GT	S3PxA CMI 2021	DUS14 White Collar	PRI 2012 with MP 2021	Diverse
Discount factor in %	3.30/3.70	2.30	4.75	3.50	4.85/5.07	2.80 – 9.25
Wage dynamics in %	n/a	2.00	3.10	2.40	n/a	2.00 – 6.00
Pension dynamics in %	1.10/1.75/2.50	n/a	3.55	1.90	n/a	n/a
Changes in cost of medical services in %	n/a	n/a	n/a	n/a	7.50	n/a

Dec. 31, 2021	Germany	Switzerland	UK	Sweden	USA	Other
Demographic assumptions	RT 2018G	BVG 2020 GT	S3PxA CMI 2020	FFFS 2007:31	PRI 2012 with MP 2021	Diverse
Discount factor in %	0.75/0.90	0.35	1.90	1.20	2.55/2.57	0.75 – 7.75
Wage dynamics in %	0.50/2.50	1.50	3.90	2.70	n/a	1.00 – 5.5
Pension dynamics in %	1.00/1.75/2.50	n/a	3.70	2.20	n/a	n/a/3.00
Changes in cost of medical services in %	n/a	n/a	n/a	n/a	6.25	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, 2022:

Sensitivity analysis

Nature and degree of change in actuarial assumptions in € millions		Present value of defined benefit obligations after the change in 2021	Change 2021[1]	Present value of defined benefit obligations after the change in 2022	Change 2022[1]
Increase in the discount rate	by +0.25%	260.8	-11.7	203.2	-6.4
Decrease in the discount rate	by −0.25%	284.8	12.3	216.4	6.8
Pension increase	by +0.25%	274.4	1.9	210.2	0.6
Pension reduction	by −0.25%	270.6	-1.9	209.0	-0.6
Increase in life expectancy	by +1 year	278.6	6.1	213.3	3.7
Decrease in life expectancy	by −1 year	269.3	-3.2	208.0	-1.6
Increase in wages and salaries	by +0.25%	278.5	6.0	213.4	3.8
Decrease in wages and salaries	by −0.25%	266.6	-5.9	205.9	-3.7

[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. New calculations of the defined benefit obligation must be made for each case.

Funding status of defined benefit pension obligations

	Germany		Switzerland		UK		Sweden		USA		Other		Total	
in € millions	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Present value of pension benefits covered by provisions	69.2	49.9	–	–	–	–	–	–	0.5	0.5	5.4	4.8	75.1	55.2
Present value of pension benefits based on plan assets	2.5	2.6	112.4	93.7	26.4	15.9	22.9	15.5	30.0	23.8	3.2	2.9	197.4	154.4
Defined benefit obligation	**71.7**	**52.5**	**112.4**	**93.7**	**26.4**	**15.9**	**22.9**	**15.5**	**30.5**	**24.3**	**8.6**	**7.7**	**272.5**	**209.6**
Fair value of plan assets	2.5	2.6	103.2	93.0	24.8	18.2	15.4	12.7	28.9	25.9	1.9	2.2	176.7	154.6
Net obligation/assets as at Dec. 31	**69.2**	**49.9**	**9.2**	**0.7**	**1.6**	**-2.3**	**7.5**	**2.8**	**1.6**	**-1.6**	**6.7**	**5.5**	**95.8**	**55.0**

	Germany		Switzerland		UK		Sweden		USA		Other		Total	
in € millions	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Other receivables and other assets; plan assets (note 15)	–	–	–	–	–	-2.3	–	–	–	-2.3	–	–	–	-4.6
Pension provisions and similar obligations (note 23)	69.2	49.9	9.2	0.7	1.6	–	7.5	2.8	1.6	0.7	6.7	5.5	95.8	59.6
Net obligation/assets as at Dec. 31	**69.2**	**49.9**	**9.2**	**0.7**	**1.6**	**-2.3**	**7.5**	**2.8**	**1.6**	**-1.6**	**6.7**	**5.5**	**95.8**	**55.0**

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		Sweden		USA		Other		Total	
in € millions	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Jan. 1	**78.7**	**71.7**	**105.8**	**112.4**	**26.6**	**26.4**	**21.6**	**22.9**	**29.7**	**30.5**	**8.6**	**8.6**	**271.0**	**272.5**
Other changes	–	–	–	–	–	–	0.5	–	–	–	–	–	0.5	–
Current service costs	0.4	0.4	4.6	4.5	0.2	0.1	–	–	–	–	0.8	0.7	6.0	5.7
Interest expense (+)/interest income (–)	0.3	0.6	0.2	0.2	0.4	0.5	0.2	0.2	0.7	0.9	–	0.1	1.8	2.5
Actuarial gains (–)/losses (+)	-3.2	-16.0	4.7	-25.6	-2.0	-9.3	1.6	-5.9	-0.5	-7.6	-0.4	-1.0	0.2	-65.4
(of which, changes from experience)	(0.1)	(0.1)	(3.3)	(-0.6)	(0.0)	(0.3)	(0.6)	(1.3)	(0.8)	–	(-0.4)	(0.3)	(4.4)	(1.4)
(of which, changes in financial assumptions)	(-3.3)	(-16.1)	(1.8)	(-25.0)	(-2.0)	(-9.6)	(1.0)	(-7.2)	(-1.3)	(-7.6)	–	(-1.3)	(-3.8)	(-66.8)
(of which, changes in demographic assumptions)	–	–	(-0.4)	–	–	–	–	–	–	–	–	–	(-0.4)	–
Past service cost	–	–	-3.4	–	–	–	–	–	–	–	–	–	-3.4	–
Payments made	-4.5	-4.2	-4.1	-3.0	-0.6	-0.8	-0.5	-0.5	-1.9	-1.5	-0.4	-0.7	-12.0	-10.7
(of which, employee contributions)	(0.2)	(0.1)	(2.5)	(2.8)	–	–	–	–	–	–	–	–	(2.7)	(2.9)
(of which, benefits paid)	(-4.7)	(-4.3)	(-6.6)	(-5.8)	(-0.6)	(-0.8)	(-0.5)	(-0.5)	(-1.9)	(-1.5)	(-0.4)	(-0.7)	(-14.7)	(-13.6)
Currency translation	–	–	4.6	5.2	1.8	-1.0	-0.5	-1.2	2.5	2.0	–	–	8.4	5.0
Dec. 31	**71.7**	**52.5**	**112.4**	**93.7**	**26.4**	**15.9**	**22.9**	**15.5**	**30.5**	**24.3**	**8.6**	**7.7**	**272.5**	**209.6**
(of which, funded by provisions)	(69.2)	(49.9)	(–)	(–)	(–)	(–)	(–)	(–)	(0.5)	(0.5)	(5.4)	(4.8)	(75.1)	(55.2)
(of which, based on plan assets)	(2.5)	(2.6)	(112.4)	(93.7)	(26.4)	(15.9)	(22.9)	(15.5)	(30.0)	(23.8)	(3.2)	(2.9)	(197.4)	(154.4)

Current service costs and interest expense totaling €8.2 million (2021: €7.8 million) were offset by payments of €10.7 million made in the fiscal year (2021: €12.0 million). The exchange rate effects, mainly relating to the Swiss franc, the US dollar and the British pound, led to an increase in the defined benefit obligation of €5.0 million (2021: €8.4 million). Overall, the defined benefit obligation decreased by €62.9 million year on year (2022: €209.6 million; 2021: €272.5 million).

Reconciliation/Development of plan assets

The reconciliation of plan assets and asset classes for the 2021 and 2022 fiscal years broke down as follows:

in € millions	2021	2022
Jan. 1	**153.4**	**176.7**
Interest income (+)	1.2	1.7
Other changes	-0.1	-0.3
Actuarial gains (+)/losses (–)	16.4	-28.3
Employer contributions	8.3	8.9
Payments	-10.1	-8.6
Currency translation	7.6	4.5
Fair value of plan assets as of Dec. 31	**176.7**	**154.6**
Cash and cash equivalents	6.1	8.3
Shares	68.9	42.1
Bonds	27.6	34.0
Fixed-interest securities	43.7	36.9
Other (real estate, insurance, other)	30.4	33.3
Total [1]	**176.7**	**154.6**
(of which, active market)	(138.1)	(113.6)
(of which, non-active market)	(38.6)	(41.0)

[1] Breakdown of the data of the active/non-active market:

in € millions	2021 Of which, active market	2021 Of which, non-active market	2022 Of which, active market	2022 Of which, non-active market
Cash and cash equivalents	1.4	4.7	3.6	4.7
Shares	65.4	3.5	39.1	3.0
Bonds	27.6	–	34.0	–
Fixed-interest securities	43.7	–	36.9	–
Other (real estate, insurance, other)	–	30.4		33.3
Total	**138.1**	**38.6**	**113.6**	**41.0**

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. 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 the defined benefit pension plans

An overview of the expected benefit payments over the next ten years is presented below:

in € millions	2021	2022
Not later than one year	11.5	12.4
Later than one year and not later than five years	50.3	52.7
Later than five years and not later than ten years	63.2	66.6

24. Other provisions

in € millions	Status as of Jan. 1, 2022	Exchange rate differences	Change Scope of consolidation	Consumption	Reversals	Additions	Status as of Dec. 31, 2022
Warranty commitments and risks from pending transactions	81.1	0.1	–	-43.7	-7.3	48.4	78.6
Provisions for restructuring obligations	3.3	0.1	–	-1.6	-1.4	–	0.4
Miscellaneous provisions	57.6	0.1	0.5	-33.1	-6.2	32.4	51.3
Total	**142.0**	**0.3**	**0.5**	**-78.4**	**-14.9**	**80.8**	**130.3**

Provisions for warranty risks decreased slightly in 2022 to €57.0 million (2021: €57.5 million). Risks from pending transactions also decreased from €23.6 million in the previous year to €21.6 million in the year under review. Both are reported within provisions for warranty commitments and risks from pending transactions.

As at the end of the fiscal year, provisions for restructuring obligations had decreased from €3.3 million in the previous year to €0.4 million in 2022.

Other provisions include provisions for costs still to be incurred for orders already invoiced (2022: €13.0 million; 2021: €12.9 million) and litigation risks (2022: €2.7 million; 2021: €5.4 million). The reduction in litigation risks is mainly attributable to a settlement in a legal dispute that was still pending in the previous year.

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. Further information on financial liabilities can be found in note 26 and details on other liabilities in note 27.

Trade payables

Trade payables include liabilities to suppliers arising from deliveries received or services used. Supplier invoices that have not yet been received at the time of the financial statements are also reported here. Liabilities increased by €21.1 million from €634.2 million as at December 31, 2021 to €655.3 million as at December 31, 2022.

Reverse factoring agreements are concluded to assist certain KUKA Group suppliers with their liquidity management. Under such an agreement, a bank acquires the rights to selected trade receivables of the supplier. Following this acquisition, however, the terms of the trade payables remain substantially unchanged. It is therefore appropriate to continue to recognize the corresponding amounts under trade payables in the balance sheet. For the purposes of the cash flow statement, the figures are also reported under operating activities as previously.

Income tax liabilities

Provisions for current taxes are divided into income tax provisions and other tax provisions. They include provisions for all types of taxes for the current year and previous years for which the company itself is liable for tax. The increase of €11.1 million in income tax liabilities from €27.6 million as at December 31, 2021 to €38.7 million as at December 31, 2022 was related to the changes to tax legislation in the USA.

Lease liabilities

Lease liabilities are recognized at the present value of the expected lease payments. This takes into account fixed and variable payments, residual value guarantees, call option strike prices and prepayment penalties (if early termination is expected). Lease liabilities are measured in subsequent periods using the effective interest method. In this context, interest and redemption payments are treated as separate items. Interest is recognized periodically over the term, irrespective of the actual incidence of payments. Further details on interest payments can be found in note 4. Adjustments due to reassessments of the present value of lease payments or contract modifications are reviewed and made on an ongoing basis, unless the modification must be treated as a separate lease. Such changes to a lease liability also result in an adjustment to the carrying amount of the corresponding right-of-use asset. For further details on right-of-use assets, please refer to note 11.

Lease liabilities fell slightly and amounted to €123.7 million as at December 31, 2022 (December 31, 2021: €124.6 million). Of this amount, €33.0 million (December 31, 2021: €30.2 million) was accounted for by current lease liabilities and €90.7 million (December 31, 2021: €94.4 million) by non-current lease liabilities.

26. Financial liabilities incl. inter-company loan

The existing financial liabilities were mainly the inter-company loan and a promissory note loan issued in 2018.

The current and non-current financial liabilities as at December 31, 2022 and December 31, 2021 are presented below:

in € millions	Dec. 31, 2021	Change	Dec. 31, 2022
Non-current financial liabilities including financial liabilities to affiliated companies	**193.1**	**3.9**	**197.0**
USD promissory note loan	44.1	-44.1	–
Inter-company loan	148.7	47.9	196.6
Other	0.3	0.1	0.4
Current financial liabilities including financial liabilities to affiliated companies	**332.0**	**42.9**	**374.9**
EUR promissory note loan	107.4	-107.4	–
USD promissory note loan	79.5	-32.7	46.8
Inter-company loan	–	97.7	97.7
Liabilities due to banks	145.1	85.3	230.4
Total financial liabilities	**525.1**	**46.8**	**571.9**

Inter-company loan

In December 2019, KUKA AG had concluded an inter-company loan agreement covering a loan volume of €150.0 million with Midea International Corporation Company Limited, Hong Kong, a wholly-owned subsidiary of Midea Group. The inter-company loan was increased by €50.0 million to the current level of €200.0 million in May 2022. The two tranches bear interest at an average rate of 0.8875% p.a. They are due in April and June 2025, respectively.

For this inter-company loan, Midea International Corporation Company Limited declared in a subordination agreement with the banks of KUKA AG’s syndicated loan agreement that its receivables arising from this loan agreement are deeply subordinated.

Furthermore, in June 2018, KUKA AG had entered into an agreement with Midea Electric Trading (Singapore) Company Pte. Ltd., Singapore, a wholly-owned subsidiary of Midea Group, on a financing facility of €150.0 million. The financing facility has a term that is based on the term of the syndicated loan agreement. The conditions for the drawings correspond to the maturity-related reference interest rate plus the applicable margin for credit drawings under the syndicated loan agreement. From this framework, a drawdown of €100.0 million with a term of 12 months at an interest rate of 1.80% p.a. was made in September 2022.

Midea Electric Trading (Singapore) Company Pte. Ltd. declared in a subordination agreement with the syndicate banks of KUKA AG’s syndicated loan agreement that its receivables arising under this financing facility are deeply subordinated.

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 guarantees, likewise in the amount of €260.0 million.

The initial term of the loan agreement was five years and contained two contractually agreed one-year extension options (5+1+1). Following the respective approval of the two extension options by the syndicate banks, the loan agreement now expires in February 2025.

The syndicated loan agreement was concluded on an unsecured basis. The only covenants agreed are the customary equal treatment clauses and negative pledges, as well as a financial covenant relating to a limit on leverage (net financial liabilities/EBIDTA). As at December 31, 2022, KUKA AG had drawn on the guarantee and working capital facilities under the syndicated loan agreement. In the 2022 fiscal year, the covenants in the credit agreement were met at each review date.

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 €364.0 million (2021: €313.4 million).

USD promissory note loan

In 2018, KUKA Toledo Production Operations LLC (KTPO), Toledo, Ohio,USA, issued promissory note loans, underwritten by KUKA AG, with a total volume of USD 150.0 million in several maturity tranches: tranche 1 with a volume of USD 10 million was repaid in 2020 as contractually agreed, while tranche 2 with a volume of USD 90 million was due in February 2022 and was also repaid as contractually agreed. Tranche 3 with a volume of USD 50 million has a term until August 2023. The interest rate on the tranche still outstanding is variable and based on the 3-month USD LIBOR plus a maturity-dependent margin. As the last interest rate fixing will take place before the discontinuation of USD LIBOR, the loan is not affected by the changeover of variable interest rates to so-called “risk-free interest rates”.

EUR promissory note loan

KUKA AG issued unsecured promissory note loans with a total volume of €250.0 million in two tranches in 2015. Tranche 1 had a volume of €142.5 million and was already repaid in 2020 as contractually agreed; tranche 2 had a volume of €107.5 million and was repaid in October 2022 as contractually agreed.

Guarantee facility lines from banks and surety companies

The guarantee facilities promised by banks and surety companies outside the syndicated loan agreement amount to €170.4 million as at December 31, 2022 (2021: €170.4 million) 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 year under review, the company had utilized €67.9 million (2021: €76.0 million).

27. Other liabilities

The other taxes included in the other current liabilities primarily consist of sales, wage and church tax. Personnel liabilities are reported within the other liabilities and mainly include obligations arising from vacation entitlements (2022: €27.2 million; 2021: €22.6 million), flex-time credits (2022: €20.5 million; 2021: €19.4 million), variable compensation components (2022: €66.3 million; 2021: €59.2 million) and pre-retirement ("Altersteilzeit") (2022: €13.4 million; 2021: €15.1 million).

Pre-retirement obligations were reduced by the fair value of the corresponding fund assets (2022: €14.0 million; 2021: €16.9 million). The present value of entitlements from pre-retirement obligations (DBO) before offsetting was €27.3 million (2021: €32.1 million). This item also includes special payments, inventor's compensation, long-service awards and contributions to the employers' liability insurance association.

Furthermore, other non-current liabilities also include derivative financial instruments with a negative fair value of €1.2 million in the year under review (2021: €2.7 million). The share of derivative financial instruments with negative fair values in current other liabilities amounted to €6.4 million as at December 31, 2022 (2021: €16.7 million).

The carrying amounts of the other liabilities are presented below:

in € millions	Residual term: Up to one year	Residual term: More than one year	Dec. 31, 2021 Total	Residual term: Up to one year	Residual term: More than one year	Dec. 31, 2022 Total
(of which, for other taxes)	(67.3)	–	(67.3)	(73.9)	–	(73.9)
(of which, for social security payments)	(7.9)	–	(7.9)	(7.4)	–	(7.4)
(of which, liabilities relating to personnel)	(140.8)	(16.6)	(157.4)	(157.9)	(15.4)	(173.3)
(of which, derivatives with a negative fair value)	(16.7)	(2.7)	(19.4)	(6.4)	(1.2)	(7.6)
(of which, other)	(43.9)	(3.0)	(46.9)	(57.3)	(2.0)	(59.3)
Other liabilities	**276.6**	**22.3**	**298.9**	**302.9**	**18.6**	**321.5**

28. Assets held for sale and liabilities directly associated with assets classified as held for sale

As at December 31, 2022, KUKA Group plans to sell a subsidiary located in Russia. There is a concrete plan for the sale and it is very probable that the transaction will be effected completely within one year. In the first step, assets and liabilities were reclassified as "Assets held for sale" and "Liabilities directly associated with assets classified as held for sale" in accordance with IFRS 5. Subsequently, taking into account the total purchase price in accordance with IFRS 10, the net assets amounting to €1.8 million were value adjusted and a provision of €1.1 million was then recognized for the outstanding warranty obligations. This was reported under "Liabilities directly associated with assets classified as held for sale".

The net assets of the Company are as follows:

in € millions	Dec. 31, 2022
Intangible assets, property, plant and equipment, inventories and trade receivables	1.5
Other assets	1.4
Cash and cash equivalents	0.6
Other liabilities	-1.7
Net assets	1.8

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 task of financial risk management is to limit the potentially negative effects of these risks on the financial position.

KUKA hedges the risks from operations, especially currency risks, and risks from financingl transactions with financial derivatives. Transactions in financial derivatives are entered into 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 financial institutions with an excellent credit rating. 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. The ongoing changes in the fair value of the interest rate swap were recognized in the financial result. The Management Board is informed on a regular basis of the current risk positions and safeguards.

For further details please refer to the opportunity and risk report.

For the presentation of market risks, IFRS 7 requires sensitivity analyses that show the effects of hypothetical changes of relevant risk variables, such as 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.

b) Currency risk

Risks from exchange rate fluctuations that could affect the Group's cash flow are hedged at the time they arise or become known by concluding derivative financial instruments with banks. Future planned transactions may also be hedged. These hedging activities ensured that KUKA was not exposed to any significant exchange rate risks from its operating and financing activities as at the balance sheet date. Currency translation risks – measurement risks associated with subsidiaries' financial statements in foreign currencies – are generally 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.

Currency sensitivity analyses are based on the following assumptions:

- Major non-derivative monetary financial instruments (cash and cash equivalents, 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. Despite their minor effects, primary and derivative instruments were included in the determination of currency sensitivities.

The currency pairs that are material for KUKA were considered when calculating currency sensitivities. This involved applying a hypothetical upward or downward revaluation of the national currency concerned against the relevant foreign currency and presenting the hypothetical impact on earnings. The basis for the hypothetical impact on earnings as at the balance sheet date are the exposures for the most important currency pairs. This results from unresolved positions of non-derivative monetary financial instruments which were not converted into the respective functional currencies by derivate financial instruments as at the balance sheet date. As at the balance sheet date, the exposure, determined by the currency sensitivities, amounted to €272.2 million (2021: 369.1 million).

in € millions	Dec. 31, 2021	Dec. 31, 2022
EUR/USD		
EUR +10%	6.7	4.0
EUR –10%	-8.2	-4.9
EUR/JPY		
EUR +10%	-0.9	-1.7
EUR –10%	1.1	2.1
EUR/CNY		
EUR +10%	-2.9	-0.3
EUR –10%	3.5	0.4
EUR/HUF		
EUR +10%	-1.1	-0.9
EUR –10%	1.3	1.1
EUR/CHF		
EUR +10%	14.6	10.1
EUR –10%	-17.9	-12.4
EUR/SEK		
EUR +10%	3.1	-1.1
EUR –10%	-3.7	1.3
Others: EUR/NOK; CNY/JPY; CHF/SEK; USD/SEK		
Base currency +10%	-0.8	0.5
Base currency –10%	1.1	-0.6

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 note loan issued in 2018 and linked to a variable interest rate. The interest rate on the tranche that is due in August 2023 is variable and based on the 3-month USD LIBOR plus a maturity-dependent margin. Interest payments are made quarterly. These variable future interest payments were converted into fixed interest agreements by entering into corresponding interest rate hedging transactions. The interest rate fixing dates from the interest rate hedging transactions correspond exactly to the fixing dates from the USD promissory note loan. The last interest rate fixing will take place in May 2023. The USD LIBOR is still available until June 2023 and can therefore be used for the final fixing. The USD-LIBOR conversion therefore has no impact.

Interest rate risks from floating-rate and fixed-interest short-term cash investments are not hedged.

Interest rate risks are 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 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, as no hedge accounting is used.
- Changes in market interest rates also affect the fair value of interest rate derivatives.

- An increase in market interest rates by 100 basis points across all currencies would have a positive effect on results of +€2.9 million based on positions at December 31, 2022 (2021: +€5.6 million). A decrease in market interest rates by 100 basis points across all currencies would have a negative effect on earnings of -€2.94 million (2021: -€5.0 million). The hypothetical impact on earnings as at the balance sheet date results exclusively from short-term cash investments of €494.5 million (2021: €673.2 million), short-term borrowings of €230,0 million (2021: €145,1 million), and the floating-rate unhedged tranches and the interest rate swap for the floating-rate tranche of the USD promissory note loan.

The IBOR transition to so-called risk free rates (RFRs) was already completed in KUKA Group in 2021. In the process, the yield curves affected by the IBOR reform were converted to RFRs. The yield curves are imported daily into the treasury management system (ITS) and used for the mark-to-market valuation of forward exchange transactions.

d) Credit risk

KUKA Group is exposed to credit risks 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 Management 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. Where necessary, appropriate allowance is made for default risks relating to potentially credit-impaired receivables.

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.

The following table shows the impairment losses on trade receivables, contract assets, lease receivables, other assets (including securities and loans) and bank balances:

	Trade receivables			Contract assets	Lease receivables	Other assets
in € millions	Credit-impaired	Not credit-impaired	Total			
Impairment losses as of Jan. 1, 2021	**11.2**	**1.9**	**13.1**	**6.6**	**1.2**	**0.1**
Additions	0.9	22.5	23.4	0.5	–	0.2
Consumption and foreign currency effects	-0.5	–	-0.5	0.6	–	0.1
Reversals	-1.5	-7.1	-8.5	-1.6	–	-0.3
Impairment losses as of Dec. 31, 2021/Jan. 1, 2022	**10.1**	**17.3**	**27.5**	**6.1**	**1.2**	**0.1**
Additions	5.2	3.8	9.0	4.0	0.1	–
Consumption and foreign currency effects	-1.0	-0.2	-1.2	-0.1	–	–
Reversals	-1.1	-16.2	-17.3	-0.4	-0.1	-0.1
Impairment losses as of Dec. 31, 2022	**13.2**	**4.7**	**18.0**	**9.6**	**1.2**	**–**

The reduction in impairment losses on non-credit-impaired receivables was mainly due to the release of risk provisions for expected losses on receivables.

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 Group and its ability to pay. With this goal in mind, KUKA AG optimizes and coordinates the Group's financing and limits the liquidity risk. The treasury management system employed throughout the Group is used to identify and illustrate these risks. Close support for the Group companies in managing their cash flows also serves to reduce liquidity risk for the Group as a whole.

In order to ensure the payment capability at all times and the financial flexibility of KUKA Group, KUKA AG keeps a liquidity reserve in the form of credit lines and cash funds. For this purpose, KUKA has, among other measures, placed promissory note loans, taken out an inter-company loan and agreed a credit line with the shareholder, concluded a syndicated loan 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 contractually agreed undiscounted cash flows for the financial instruments subsumed under IFRS 7:

Dec. 31, 2022 in € millions	Cash flows 2023	Cash flows 2024	Cash flows 2025 – 2027	Cash flows 2028 ff.
Financial liabilities	279.0	–	–	–
Accounts payable to affiliated companies	103.1	1.8	200.8	–
FX derivatives (gross settlement)	337.6	26.7	8.7	–
Interest rate derivatives (net settlement)	–	–	–	–
Trade payables	655.3	–	–	–
Liabilities from leases	38.8	31.7	54.1	25.0
Other liabilities	245.6	15.8	2.1	

Dec. 31, 2021 in € millions	Cashflows 2022	Cashflows 2023	Cashflows 2024 – 2026	Cashflows 2027 ff.
Financial liabilities	189.1	44.6	–	–
Accounts payable to affiliated companies	1.3	1.3	151.9	–
FX derivatives (gross settlement)	623.3	33.2	13.8	–
Interest rate derivatives (net settlement)	1.3	1.0	–	–
Trade payables	634.2	–	–	–
Liabilities from leases	30.2	36.2	66.8	–
Other liabilities	224.4	16.6	2.9	–

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, 2022. Financial liabilities repayable at any time are always allocated to the earliest period.

30. 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.

Carrying amounts and fair values by measurement categories for 2022

The carrying amounts and the fair values according to IFRS 9 are presented in the following table:

Assets

in € millions	Carrying amount Dec. 31, 2022	Balance sheet valuation according to IFRS 9			Balance sheet valuation according to IFRS 16	Not within the scope of IFRS 7	Fair value as at Dec. 31, 2022	Assessment hierarchy level
		At amortized cost	At fair value through other comprehensive income	At fair value through profit or loss				
Financial investments	4.8	–	–	4.8	–	–	4.8	
of which, participations	(4.8)	(–)	(–)	(4.8)	(–)	(–)	(4.8)	3
Finance lease receivables – non-current	66.4	–	–	–	66.4	–	58.4	2
Other receivables and other assets – non-current	5.8	0.6	–	0.3	–	4.9	0.3	
of which, derivatives	(0.3)	(–)	(–)	(0.3)	(–)	(–)	(0.3)	2
of which, deposits	(0.6)	(0.6)	(–)	(–)	(–)	(–)	n/a*	
of which, others	(4.9)	(–)	(–)	(–)	(–)	(4.9)	(–)	
Trade receivables	713.4	663.9	–	49.4	–	–	49.4	2
Finance lease receivables – current	41.5	–	–	–	41.5	–	n/a*	
Other receivables and other assets – current	126.2	16.6	–	8.8	–	100.7	8.8	
of which, derivatives	(8.6)	(–)	(–)	(8.6)	(–)	(–)	(8.6)	2
of which, securities	(–)	(–)	(–)	(–)	(–)	(–)	n/a*	
of which, deposits	(16.1)	(16.1)	(–)	(–)	(–)	(–)	n/a*	
of which, loans	(0.5)	(0.5)	(–)	(–)	(–)	(–)	n/a*	
of which, others	(101.0)	(–)	(–)	(0.2)	(–)	(100.7)	(0.2)	3
Cash and cash equivalents	494.5	494.5	–	–	–	–	n/a*	
Total financial instruments (assets)	**1,452.5**	**1,175.6**	**–**	**63.3**	**107.9**	**105.6**		

Equity and liabilities

in € millions	Carrying amount Dec. 31, 2022	Balance sheet valuation according to IFRS 9			Balance sheet valuation according to IFRS 16	Not within the scope of IFRS 7	Fair value as at Dec. 31, 2022	Assessment hierarchy level
		At amortized cost	At fair value through other comprehensive income	At fair value through profit or loss				
Financial liabilities – non-current	0.4	0.4	–	–	–	–	0.4	3
Accounts payable to affiliated companies – non-current	196.6	196.6	–	–	–	–	184.9	3
Finance lease liabilities – non-current	90.7	–	–	–	90.7	–	n/a**	
Other liabilities – non-current	18.6	–	–	1.2	–	17.4	1.2	
of which, derivatives	(1.2)	(–)	(–)	(1.2)	(–)	(–)	(1.2)	2
of which, others	(17.4)	(–)	(–)	(–)	(–)	(17.4)	n/a	
Financial liabilities – current	277.2	277.2	–	–	–	–	n/a*	
Accounts payable to affiliated companies – current	97.8	97.8	–	–	–	–	n/a*	
Trade payables	655.3	655.3	–	–	–	–	n/a*	
Finance lease liabilities – current	33.0	–	–	–	33.0	–	n/a**	
Other liabilities – current	302.9	69.6	–	6.4	–	226.9	6.4	
of which, derivatives	(6.4)	(–)	(–)	(6.4)	(–)	(–)	(6.4)	2
of which, others	(296.5)	(69.6)	(–)	(–)	(–)	(226.9)	n/a*	
Liabilities directly associated with assets classified as held for sale	1.1	1.1	–	–	–	–	n/a*	
Total financial instruments (liabilities)	**1,673.6**	**1,298.0**	**–**	**7.6**	**123.7**	**244.3**		

n/a = no disclosure required, as not in scope of IFRS 7/13
n/a* = the carrying amount approximates the fair value
n/a** = waiver of fair value disclosure in accordance with IFRS 7.29(d)

Carrying amounts and fair values by measurement categories for 2021

The carrying amounts and the fair values according to IFRS 9 are presented in the following table:

Assets

in € millions	Carrying amount as at Dec. 31, 2021	Balance sheet valuation according to IFRS 9			Balance sheet valuation according to IFRS 16	Not within the scope of IFRS 7	Fair value as at Dec. 31, 2021	Assessment hierarchy level
		At amortized cost	At fair value through other comprehensive income	At fair value through profit or loss				
Financial investments	5.0	–	–	5.0	–	–	5.0	
of which, participations	(5.0)	(–)	(–)	(5.0)	(–)	(–)	(5.0)	3
Finance lease receivables – non-current	100.7	–	–	–	100.7	–	61.1	2
Other receivables and other assets – non-current	1.3	0.6	–	0.4	–	0.3	0.4	
of which, derivatives	(–)	(–)	(–)	(–)	(–)	(–)	(–)	
of which, deposits	(0.6)	(0.6)	(–)	(–)	(–)	(–)	n/a*	
of which, others	(0.7)	(–)	(–)	(0.4)	(–)	(0.3)	(0.4)	2
Trade receivables	596.9	525.1	–	71.8	–	–	71.8	2
Finance lease receivables – current	32.9	–	–	–	32.9	–	n/a*	
Other receivables and other assets – current	211.7	123.4	–	2.6	–	85.7	2.6	
of which, derivatives	(2.2)	(–)	(–)	(2.2)	(–)	(–)	(2.2)	2
of which, securities	(112.7)	(112.7)	(–)	(–)	(–)	(–)	n/a*	
of which, deposits	(10.1)	(10.1)	(–)	(–)	(–)	(–)	n/a*	
of which, loans	(0.6)	(0.6)	(–)	(–)	(–)	(–)	n/a*	
of which, others	(86.1)	(–)	(–)	(0.4)	(–)	(85.7)	(0.4)	3
Cash and cash equivalents	673.2	673.2	–	–	–	–	n/a*	
Total carrying amounts of financial instruments (assets)	**1,621.7**	**1,322.3**	**–**	**79.8**	**133.6**	**86.0**		

Equity and liabilities

in € millions	Carrying amount as at Dec. 31, 2021	Balance sheet valuation according to IFRS 9			Balance sheet valuation according to IFRS 16	Not within the scope of IFRS 7	Fair value as at Dec. 31, 2021	Assessment hierarchy level
		At amortized cost	At fair value through other comprehensive income	At fair value through profit or loss				
Financial liabilities – non-current	44.4	44.4	–	–	–	–	42.7	3
Accounts payable to affiliated companies – non-current	148.7	148.7	–	–	–	–	146.8	3
Finance lease liabilities – non-current	94.4	–	–	–	94.4	–	n/a**	
Other liabilities – non-current	22.3	–	–	2.7	–	19.6	2.7	
of which, derivatives	(2.7)	(–)	(–)	(2.7)	(–)	(–)	(2.7)	2
of which, others	(19.6)	(–)	(–)	(–)	(–)	(19.6)	n/a	
Financial liabilities – current	332.0	332.0	–	–	–	–	n/a*	
Trade payables	634.2	634.2	–	–	–	–	n/a *	
Finance lease liabilities – current	30.2	–	–	–	30.2	–	n/a**	
Other liabilities – current	276.6	65.5	–	16.7	–	194.4	16.7	
of which, derivatives	(16.7)	(–)	(–)	(16.7)	(–)	(–)	(16.7)	2
of which, others	(259.9)	(65.5)	(–)	(–)	(–)	(194.4)	n/a*	
Total financial instruments (liabilities)	**1,582.8**	**1,224.8**	**–**	**19.4**	**124.6**	**214.0**		

n/a = no disclosure required, as not in scope of IFRS 7/13
n/a* = the carrying amount approximates the fair value
n/a** = waiver of fair value disclosure in accordance with IFRS 7.29(d)

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 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 on the basis of the input factors:

Level 1
Level 1 inputs are (unadjusted) quoted prices in active markets for identical assets or liabilities that are accessible to the entity at the measurement date.

Level 2
Level 2 inputs are quoted market prices other than those in level 1 that are either directly or indirectly observable for the asset or liability.

Level 3
Level 3 inputs are inputs that are unobservable for the asset or liability.

As a rule, financial assets have short remaining terms to maturity. The carrying amount approximates fair value. Financial investments, non-current derivatives and lease receivables are an exception. For financial investments measured at fair value through profit or loss (FVtPL), cost is the best estimate of fair value. These are recognized at fair value as at the balance sheet date. All financial investments are allocated to fair value hierarchy level 3. Shares from equity holdings not traded on the market are assigned to level 3. The fair value of lease receivables is determined by discounting non-current cash flows at the Group debt financing interest rate.

Financial liabilities carried at amortized cost using the effective interest method are mainly liabilities from promissory note loans. All non-current financial liabilities are allocated to fair value hierarchy level 3. They are calculated as a present value by discounting future cash flows using term-specific, risk-adjusted market interest rates. No fair value needs to be determined for the lease liabilities.

The derivative financial instruments recognized at the balance sheet date are forward exchange transactions or interest rate derivatives used to hedge exchange rate risks or interest rate risks, respectively. They are recognized in the balance sheet at fair value determined with the aid of standard financial mathematical techniques, using current market parameters such as exchange rates, interest rates and counterparty credit ratings (mark-to-market method). They are allocated to fair value hierarchy level 2.

No reclassifications between the levels were made either in the year under review or in the previous year.

Gains and losses from financial instruments

Net results and total interest results, broken down by measurement category, are thus represented as follows:

Net gains/losses and total interest results by IFRS 9 measurement categories for the 2022 fiscal year

in € millions	Total comprehensive income	Total interest income	Total interest expenses
Financial Assets Measured at Amortized Cost (AC)	25.0	14.7	–
Financial Assets and Liabilities Measured at Fair Value Through Profit and Loss (FVtPL)	-22.3	n/a	n/a
Financial Assets Measured at Fair Value through Other Comprehensive Income (FVOCI)	n/a	n/a	n/a
Financial Liabilities Measured at Amortized Cost (FLAC)	2.0	–	-10.7
Total	**5.8**	**14.7**	**-10.7**

Net gains/losses and total interest results by IFRS 9 measurement categories for the 2021 fiscal year

in € millions	Total comprehensive income	Total interest income	Total interest expenses
Financial Assets Measured at Amortized Cost (AC)	-5.9	15.8	–
Financial Assets and Liabilities Measured at Fair Value Through Profit and Loss (FVtPL)	-12.7	n/a	n/a
Financial Assets Measured at Fair Value through Other Comprehensive Income (FVOCI)	1.4	n/a	n/a
Financial Liabilities Measured at Amortized Cost (FLAC)	2.8	–	-10.4
Total	**-14.4**	**15.8**	**-10.4**

The net gains and losses in the Amortized Cost (AC) category comprise foreign exchange effects and the results of additions and releases of valuation allowances. Total interest income and expenses include interest income on bank balances, which, unlike total comprehensive income, developed adversely for KUKA Group in fiscal 2022 compared to fiscal 2021.

The result of the Fair Value through Profit and Loss (FVtPL) category is composed of fair value changes. The fair value changes result, among other things, from changes in interest rates and exchange rates. In addition to foreign currency effects, losses from the disposal of financial assets and gains from changes in the fair value of financial investments are also included here.

As in the previous year, the net gains and losses in the Financial Liabilities measured at Amortized Cost (FLAC) category comprise the net profit originating from the release of liabilities. The total interest expense mainly relates to interest expense for banks in fiscal 2022, as it also did in fiscal 2021.

31. Contingent liabilities and other financial commitments

At the end of the fiscal year, liabilities from guarantees amounted to €2.6 million (2021: €3.2 million). Obligations from warranty agreements amounted to €0.3 million in the year under review (2021: €0.4 million).

in € millions	2021	2022
Purchase commitments	40.9	53.5
Rent/lease liabilities	10.6	12.4
Other financial commitments	16.2	5.8
Total	**67.7**	**71.7**

Purchase commitments, which are mainly attributable to a customer project at a subsidiary in the Swisslog business segment, remained at the prior-year level. In the year under review, obligations arising from rental and lease agreements increased slightly to €12.4 million (2021: €10.6 million).

32. Management of capital

The primary objectives of KUKA Group's capital management are to increase shareholder value and to support ongoing business operations by providing adequate financial resources.

To achieve the objectives, it is necessary to have appropriate and sufficient equity (equity ratio) and liquidity (net liquidity/debt). These indicators are shown below:

		2021	2022
Equity	€ millions	1,354.6	1,500.4
/Total equity	€ millions	3,709.1	3,955.9
Equity ratio	**%**	**36.5**	**37.9**
EBIT	€ millions	61.8	118.4
Cash and cash equivalents	€ millions	673.2	494.5
Non-current financial liabilities incl. accounts payable to affiliated companies	€ millions	-193.1	-197.0
Current financial liabilities incl. accounts payable to affiliated companies	€ millions	-332.0	374.9
Net liquidity/debt	**€ millions**	**148.1**	**-77.4**

As a result of the expansion of the balance sheet total and equity, the equity ratio rose from 36.5% at the end of fiscal 2021 to 37.9% at the end of fiscal 2022. The current earnings had a positive impact on equity.

Net liquidity/debt fell from €148.1 million in 2021 to -€77.4 million in 2022. Cash and cash equivalents also decreased by €178.7 million from €673.2 million in the previous year to €494.5 million in the year under review.

Notes to the Group cash flow statement

In accordance with IAS 7, KUKA Group presents the development of cash flows in the cash flow statement separately for incoming and outgoing funds from operating, investing and financing activities. The cash flow from operating activities is determined using the indirect method.

Cash and cash equivalents in the cash flow statement include all cash and cash equivalents disclosed in the balance sheet, namely cash on hand, checks and cash with banks provided they are available within three months.

The starting point for determining the cash flow from operating activities 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.

Income taxes include current tax expenses. The change in deferred taxes is included in other non-cash expenses or income.

Detailed information can be found in the management report under "Financial position" and in the Group cash flow statement.

Presented below is the reconciliation of the liabilities from financing activities for fiscal years 2022 and 2021:

in € millions	Financial liabilities	Accounts payable to affiliated companies	Lease liabilities	Total
Status as of Jan. 1, 2021	**376.2**	**148.4**	**121.6**	**646.2**
Changes affecting payments	-6.8	-1.3	-34.6	-42.7
New leases	–	–	35.1	35.1
Exchange rate changes	4.2	–	–	4.2
Other changes	2.8	1.6	2.5	6.9
Status as of Dec. 31, 2021/Jan. 1, 2022	**376.4**	**148.7**	**124.6**	**649.7**
Changes affecting payments	-102.9	151.7	-34.2	14.6
New leases	–	–	33.4	33.4
Exchange rate changes	4.1	–	–	4.1
Other changes	–	-6.1	-0.1	-6.2
Status as of Dec. 31, 2022	**277.6**	**294.3**	**123.7**	**695.6**

The difference of the net change in cash flow from financing activities is mainly due to interest payments, receipts from grants received and dividend payments. The interest payments reported in the cash flow statement also include payments that do not relate to liabilities from financing activities.

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 Management and Supervisory Boards, including their close family members, 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.

Controlled related parties that are not consolidated include:

- IWK Unterstützungseinrichtung GmbH, Karlsruhe
- KUKA Unterstützungskasse GmbH, Augsburg

Related parties that are associates include:

- Chang'an Reis (Chongqing) Robotic Intelligent Equipment Co. Ltd, China
- Yawei Reis Robot Manufacturing (Jiangsu) Co. Ltd., Yangzhou City, China
- Shanghai Swisslog Technology Co., Ltd., Shanghai, China
- Guangdong Swisslog Technology Co., Ltd., Shunde, China
- Otsaw Swisslog Healthcare Robotics Pte. Ltd, Singapore

Related parties over which significant influence is exercised and which are accounted for as other investments include:

- RoboCeption GmbH, Munich

Direct shareholders in KUKA Aktiengesellschaft – Midea Electrics Netherlands (I) B.V. with a shareholding of 85.7240% and Midea Electrics Netherlands (II) B.V. with a shareholding of 14.2760%, which are wholly owned subsidiaries of Guangdong Midea Electric Company Limited, which in turn is wholly owned by Midea Group Co., Ltd. – are also related parties, as are Mr. Xiangjian He as the ultimate controlling party and his close family members.

The following table shows the receivables from and liabilities to related parties for the 2022 and 2021 fiscal years:

in € millions	Shares of KUKA AG in %	Group receivables from related parties		Group liabilities to related parties	
		Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022
Midea Group	–	16.0	18.5	176.8	308.6
Chang'an Reis (Chongqing) Robotic Intelligent Equipment Co. Ltd, China	50.0	3.8	2.4	1.4	–
Yawei Reis Robot Manufacturing (Jiangsu) Co. Ltd., China	49.0	0.2	–	–	0.5
RoboCeption GmbH, Munich	26.7	0.5	0.4	–	–
Others/less than €1 million		–	–	–	0.2
Total		**20.5**	**21.3**	**178.2**	**309.3**

The following table shows the goods and services provided to and received from related parties:

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, 2021	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022
Midea Group	–	36.8	64.1	22.7	39.0
Chang'an Reis (Chongqing) Robotic Intelligent Equipment Co. Ltd, China	50.0	4.9	0.1	–	–
Yawei Reis Robot Manufacturing (Jiangsu) Co. Ltd., China	49.0	1.1	0.3	2.9	0.2
RoboCeption GmbH, Munich	26.7	–	–	0.1	–
Others/less than €1 million		–	0.1	–	0.2
Total		**42.8**	**64.6**	**25.7**	**39.4**

Deliveries and services provided and received break down into the following transaction types:

in € millions	Goods and services provided by the Group to related parties		Goods and services provided to the Group by related parties	
	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022
Purchases or sales of (finished/unfinished) goods	24.6	24.4	15.8	22.6
Services rendered or received	15.1	35.0	7.9	10.7
Service transfers in research and development	3.1	4.9	–	–
Transfers under financing agreements	0.1	0.2	1.6	4.1
Other	–	0.1	0.2	2.0
Total	**42.8**	**64.6**	**25.7**	**39.4**

The supply and service relationships with all related parties are conducted under the "dealing at arm's length" principle in accordance with usual market practice.

Share-based compensation:

A small number of people participate in the employee share program of Midea Group. The share-based payment transactions of KUKA Group, which are settled by equity instruments of Midea Group, comprise the so-called Share Option Incentive Plan and the so-called Restricted Share Plan. These plans are measured at the fair value of the equity instruments at the grant date. The equity instruments are tradable or exercisable if the specified services are rendered in the vesting period or certain performance conditions are met.

Share Option Incentive Plan

In accordance with the Ninth Share Option Incentive Plan, which was approved at the 2021 Annual General Meeting of Midea Group in 2022, 44 employees of KUKA Group were granted 1.9 million share options with an exercise price of €7.42. Subject to the assumption that Midea Group generates a weighted average net asset return of no less than 20%, 18% and 18%, and the eligible employee and their employing company reach their individual goals, 30%, 30% and 40% of the total share options granted will be determined and effective after 2 years, 3 years and 4 years, respectively, from June 8, 2022.

The fair value of the share options is determined using the Black-Scholes option pricing model.

The following parameters were used to determine the fair value of share options on the date the options were granted:

Exercise price of share options	€7.42
Effective exercise period of the options	5 years
Current price of the underlying shares	€7.20
Expected volatility of the share price	35.70%
Expected payout ratio	2.17%
Risk-free interest rate in the exercise period	2.00%

The fair value of the Ninth Share Option Incentive Plan calculated according to the above parameters is €3.1 million. The following table shows the development of share options during the year:

	Number of share options in millions		Weighted average of exercise prices in €	
	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022
Options outstanding at the beginning of the reporting period	2.6	3.3	7.09	8.83
Options granted in the reporting period	1.6	1.9	11.32	7.42
Options exercised in the reporting period	0.3	0.6	6.87	6.48
Options that expired in the reporting period	0.6	0.2	6.89	8.10
Changes in the reporting period due to job rotation	–	0.3	6.89	8.14
Options outstanding at the end of the reporting period	**3.3**	**4.6**	**9.03**	**8.40**

The share options outstanding at the end of the year have the following expiration dates and exercise prices:

	Expiration date	Exercise price in €	Number of shares in € millions	
			Dec. 31, 2021	Dec. 31, 2022
Fifth Share Option Incentive Plan	May 6, 2024	6.82	0.1	0.1
Sixth Share Option Incentive Plan	May 29, 2025	6.53	0.5	0.3
Seventh Share Option Incentive Plan	June 4, 2024	6.41	1.0	0.7
Eighth Share Option Incentive Plan	June 3, 2026	10.84	1.6	1.6
Ninth Share Option Incentive Plan	June 7, 2027	7.42	–	1.9

The total expense recognized in 2022 from the Share Option Incentive Plan amounted to €1.9 million (2021: €1.6 million).

Restricted Share Incentive Plan

In accordance with the Restricted Share Incentive Plan for 2022, which was approved at the 2021 Annual General Meeting of Midea Group in 2022, 8 employees of KUKA Group were granted 0.5 million restricted shares with an exercise price of €3.60. Subject to the assumption that Midea Group generates a weighted average net asset return of no less than 20%, 18% and 18%, and the eligible employee and their employing company reach their individual goals, 30%, 30% and 40% of the total restricted shares granted will be determined and effective after 2 years, 3 years and 4 years, respectively, from June 8, 2022. The listing date for the restricted shares granted under this plan is July 13, 2022.

The fair value of the share options is based on the share prices, excluding the price of incentive options, and on the number of shares at the grant date, taking into account any effects from related plans of Midea Group.

The following parameters were used to determine the fair value of restricted share options at the time the options were granted:

Current price of the underlying shares	€7.20
Exercise price granted	€3.60
Fair value per share	€3.60
Number of shares granted	0.5 million
Total fair value	€1.8 million

The fair value of the Restricted Shares Incentive Plan calculated according to the above parameters is: €1.8 million. The following table shows the development of restricted share options during the year:

	Number of share options in millions		Weighted average of exercise prices in €	
	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022
Options outstanding at the beginning of the reporting period	1.1	1.2	3.36	4.07
Options granted in the reporting period	0.6	0.5	5.55	3.60
Options enabled in the reporting period	0.1	0.3	3.16	2.85
Options that expired in the reporting period	0.4	0.2	3.59	4.22
Changes in the reporting period due to job rotation	0.1	0.2	3.15	3.63
Options outstanding at the end of the reporting period	**1.2**	**1.4**	**4.16**	**3.87**

The share options outstanding at the end of the year have the following expiration dates and exercise prices:

	Expiration date	Exercise price in €	Number of shares in millions	
			Dec. 31, 2021	Dec. 31, 2022
2019 Restricted Share Incentive Plan	May 29, 2025	2.85	0.2	0.2
2020 Restricted Share Incentive Plan	June 4, 2024	2.88	0.4	0.2
2021 Restricted Share Incentive Plan	June 3, 2026	5.20	0.5	0.4
2022 Restricted Share Incentive Plan	June 7, 2027	3.60	–	0.5

The total expense recognized in 2022 from the Restricted Share Plan amounted to €1.4 million (2021: €1.5 million).

Compensation of the active Management Board and Supervisory Board

The total compensation of active members of the Management Board pursuant to section 314 para. 1 no. 6a of the German Commercial Code (HGB) for fiscal 2022 amounted to €5.6 million (2021: €5.1 million). Of this amount, €3.0 million was attributable to short-term benefits (2021: €4.2 million) and €2.6 million to long-term variable compensation components (2021: €0.9 million). The long-term variable compensation is granted annually in the form of the Long-Term Performance Plan (LTPP) with a performance period of four years. At the beginning of each fiscal year, the Management Board members are assigned a target amount determined in their individual contracts (2022: €0.3 million) for the respective tranche of the LTPP. At the end of the performance period, this target amount is multiplied by the target achievement for the financial performance target “relative earnings per share” (relative EPS). The EPS performance achieved by KUKA is compared with the EPS performance of relevant competitors. Relative EPS performance is measured by means of an annual comparison of KUKA’s percentage EPS development with the percentage EPS development of relevant competitors. The payout amount determined is capped at 200% of the target amount. Payment is made in cash at the end of the performance period.

As at December 31, 2022, liabilities of €1.3 million were recognized in respect of short-term compensation components (2021: €0.5 million). The entitlement for this was fully earned in the year under review, but the actual payment is measured on the basis of the target achievement determined by the Supervisory Board on the basis of the currently valid compensation system and will be made in 2023.

The compensation of key management personnel of KUKA Group to be disclosed in accordance with IAS 24 includes the compensation of the active Management Board and the Supervisory Board.

The active members of the Management Board were compensated as follows:

in € millions	2021	2022
Short-term benefits (excluding share-based compensation)	2.2	3.0
Long-term benefits	2.1	4.6
Benefits due to termination of employment	2.1	–
Share-based compensation	0.3	–
Total	**6.7**	**7.6**

There are no post-employment benefits. The disclosure of share-based compensation relates to the expense recognized in the respective fiscal year.

No loans or advances were granted to members of the Management Board in the year under review or in the previous year; moreover, no contingent liabilities were entered into in favor of Management Board members.

The active members of the Supervisory Board were compensated as follows:

in € millions	2021	2022
Total compensation (including attendance fees)	1.2	1.1

The compensation of members of the Supervisory Board comprises an annual fixed compensation. In addition, there is compensation for committee work and an attendance fee. Employee representatives on the Supervisory Board also receive a regular salary from the respective employment relationship, with the amount corresponding to appropriate compensation for the work performed in the Group.

As at the end of the year under review, as in the previous year, no loans or advances were granted to members of the Supervisory Board; no contingent liabilities were entered into in favor of Supervisory Board members.

Compensation of former Management Board members

Apart from a few exceptions, former Management 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'/widowers' and orphans' pensions. The amount of accruals included for this group of persons in 2022 for current pensions and vested pension benefits totals €9.7 million (2021: €10.0 million). Pensions and surviving dependents' benefits for this group of persons amounted to €0.9 million (2021: €0.8 million).

Events after the balance sheet date

The shares held by Swisslog Healthcare Holding AG in Otsaw Swisslog Healthcare Robotics Pte. Ltd. amounting to 40% were reduced by one third as planned following the exercise of a put option. The sale of the shares was completed in January 2023 with the cash payment to Swisslog Healthcare Holding AG.

The shares in Otsaw Technology Solutions Pte. Ltd., which were received in the previous year as part of the consideration for the sale of current assets in the Healthcare segment, were swapped with shares in Otsaw Digital Pte.Ltd. on an equal basis at the beginning of fiscal 2023.

Audit fees

The fee for the auditors, PricewaterhouseCoopers GmbH, Wirtschaftsprüfungsgesellschaft, Munich, recognized as an expense in 2022 totals €1.5 million (2021: €1.2 million) for services provided in Germany. €1.5 million (2021: €1.1 million) was recognized for financial statement audit services. Expenses of €0.0 million (2021: €0.0 million) were recognized in the fiscal year for tax advisory services and €0.0 million (2021: €0.3 million) for other services performed by the auditors.

€1.1 million (2021: €1.0 million) was recognized as an expense for financial statement auditing services performed for foreign subsidiaries. Expenses of €0.1 million (2021: €0.1 million) were recognized for tax advisory services and €0.3 million (2021: €0.1 million) for other services performed by the auditors.

Information on preparation and release

The Management Board prepared the consolidated financial statements on March 14, 2023 and released them for submission to the Supervisory Board. The Supervisory Board is responsible for examining and approving the consolidated financial statements.

Augsburg, March 14, 2023

KUKA Aktiengesellschaft

The Management Board

Peter Mohnen Alexander Tan

Corporate bodies

Management Board

Name	Year of birth	First appointed	Appointed until	Memberships in statutory supervisory boards and in comparable German and foreign controlling bodies of commercial enterprises As at Dec. 31. 2022
Peter Mohnen Chief Executive Officer	1968	Aug. 1, 2012	Dec. 31, 2025	
Alexander Tan Chief Financial Officer	1970	Jul. 1, 2021	Dec. 31, 2025	

Supervisory Board

Name	Current occupation	Year of birth	First appointed[2]	Appointed until	Memberships in statutory supervisory boards and in comparable German and foreign controlling bodies of commercial enterprises As at Dec. 31. 2022
Dr. Yanmin (Andy) Gu Chariman of the Supervisory Board	Director Vice President Midea Group	1963	Feb. 10, 2017	AGM 2023	**International mandates:** › Beautiland B.V., Amsterdam, Netherland › Frylands B.V., Amsterdam, Netherland › South American Holdco III, Amsterdam, Netherland › South American Holdco II B.V., Amsterdam, Netherland › Midea Electric Netherlands (I) B.V., Amsterdam, Netherland (since 2022-12-31) › Midea Investment (Asia) Co. Ltd., Hongkong, China › Guangdong Midea Intelligent Robotics Co. Ltd., Guangdong, China
Michael Leppek[1] Deputy Chariman of the Supervisory Board	1st Authorized Representative and Managing Director IG Metall Augsburg	1970	Sep. 12, 2013	Resigned as of Jun. 15, 2022	**German mandates:** › MAN Energy Solutions SE › AIRBUS Helicopters Deutschland GmbH
Angela Steinecker[1] Deputy Chariman of the Supervisory Board	2nd Authorized Representative and Managing Director IG Metall Augsburg	1970	Jun. 6, 2022	AGM 2023	**German mandates:** › RENK GmbH › BSH Hausgeräte GmbH
Lin (Avant) Bai	President Midea Group Refrigerator Division	1981	Feb. 26, 2021	Resigned as of Dec. 31, 2022	
Wilfried Eberhardt[1]	Chief Marketing Officer KUKA AG	1959	May 15, 2008	AGM 2023	
Prof. Dr. Henning Kagermann	Chairman of the acatech Board of Trustees	1947	May 31, 2017	AGM 2023	**International mandates:** › SUSE SA, Luxemburg, Luxemburg
Armin Kolb[1]	Chairman of the Works Council of the KUKA Plants in Augsburg	1963	Jun. 5, 2013	AGM 2023	
Carola Leitmeir[1]	Deputy Chairman of the Works Council of the KUKA Plants at Augsburg	1968	Jul. 1, 2009	AGM 2023	
Min (Francoise) Liu	Vice President Yangshengtang Co. Ltd. (since Jun. 3, 2021 HR Director Midea Group (until May 31, 2021)	1977	Feb. 10, 2017	Resigned as of Dec. 31, 2022	**International mandates:** › Foshan Midea Zhihui Real Estate Development Co., Ltd., Foshan, China › Guangdong Midea Smart Link Home Technology Co. Ltd., Foshan, China

Name	Current occupation	Year of birth	First appointed [2]	Appointed until	Memberships in statutory supervisory boards and in comparable German and foreign controlling bodies of commercial enterprises As at Dec. 31. 2022
Manfred Hüttenhofer [1]	Head of Competence Center Motion Control KUKA Deutschland GmbH	1964	Jun. 6, 2018	AGM 2023	
Dr. Myriam Meyer	Managing Director of mmtec	1962	Jun. 6, 2018	AGM 2023	**German mandate:** › Lufthansa Technik AG, Hamburg **International mandate:** › Wienerberger AG, Wien, Österreich
Tanja Smolenski [1]	Union Secretary to the Excecutive Committee of the IG Metall trade union, Fundamental Issues and Social Policy deppartment, Berlin office	1973	Dec. 15, 2017	AGM 2023	
Helmut Zodl	CFO Midea Group (until Jan. 31, 2021) CFO GE Healthcare (from Feb. 1, 2021)	1972	Jan. 24, 2020	AGM 2023	**International mandates:** › Wipro GE Healthcare Pvt. Ltd. Bangalore, India › STO, Society for Translational Oncology, Durham, USA

[1] Employee representive

[2] The specification of first appointment is the date of initial membership of the Supervisory Board, whether by election at an Annual General Meeting, election pursuant to the German Co-Determination Act (MitbestG) or by court appointment

Schedule of shareholdings of KUKA Aktiengesellschaft

Status as of Dec. 31, 2022

	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	KUKA Assembly & Test GmbH, Bremen, Germany [1]	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 Real Estate GmbH & Co. KG, Augsburg, Germany [1]	EUR	k	100.00
7	KUKA Real Estate Management GmbH, Augsburg, Germany	EUR	k	100.00
8	KUKA Systems GmbH, Augsburg, 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 [1]	EUR	k	100.00
13	Swisslog Healthcare GmbH, Westerstede, Germany	EUR	k	100.00
14	Visual Components GmbH, Munich, Germany	EUR	k	100.00
15	WR Vermögensverwaltungs GmbH, Obernburg, Germany	EUR	k	100.00
16	Roboception GmbH, Munich, Germany	EUR	b	26.74
17	IWK Unterstützungseinrichtung GmbH, Karlsruhe, Germany	EUR	nk	100.00
18	KUKA Unterstützungskasse GmbH, Augsburg, Germany	EUR	nk	100.00
Other Europe				
19	KUKA Automation ČR s.r.o. i.L., Chomutov, Czech Republic	CZK	k	100.00
20	KUKA Automatisering + Robots N.V., Houthalen, Belgium	EUR	k	100.00
21	KUKA AUTOMATISME + ROBOTIQUE S.A.S., Villebon-sur-Yvette, France	EUR	k	100.00
22	KUKA AUTOMATIZARE ROMANIA S.R.L., Sibiu, Romania	RON	k	100.00
23	KUKA CEE GmbH, Steyregg, Austria	EUR	k	100.00
24	KUKA Hungaria Kft., Taksony, Hungary	EUR	k	100.00
25	KUKA Iberia, S.A.U. , Vilanova i la Geltrú, Spain	EUR	k	100.00
26	KUKA Nordic AB, Västra Frölunda, Sweden	SEK	k	100.00
27	KUKA Roboter Italia S.p.A., Rivoli, Italy	EUR	k	100.00
28	KUKA Robotics Ireland Ltd, Dundalk, Ireland	GBP	k	100.00
29	KUKA Robotics OOO, Moscow, Russia	RUB	k	100.00

Name and registered office of the company		Currency	Method of consolidation	Share of equity in %
30	KUKA Robotics UK Limited, Wednesbury, UK	GBP	k	100.00
31	KUKA S-Base s.r.o. i.L., Roznov p.R., Czech Republic	CZK	k	100.00
32	KUKA Slovakia s.r.o., Dubnica nad Váhom, Slovakia	EUR	k	100.00
33	KUKA Systems Aerospace SAS, Bordeaux-Merignac, France	EUR	k	100.00
34	KUKA Systems France S.A., Montigny, France	EUR	k	99.99
35	KUKA Systems UK Limited, Halesowen, UK	GBP	k	100.00
36	Reis Espana S.L. i.L., Esplugues de Llobregat (Barcelona), Spain	EUR	k	100.00
37	Swisslog (UK) Ltd., Redditch, UK	GBP	k	100.00
38	Swisslog AB, Partille, Sweden	SEK	k	100.00
39	Swisslog AG, Buchs AG, Switzerland	CHF	k	100.00
40	Swisslog AS, Oslo, Norway	NOK	k	100.00
41	Swisslog B.V., Culemborg, Netherlands	EUR	k	100.00
42	Swisslog France SAS, Suresnes, France	EUR	k	100.00
43	Swisslog Healthcare AG, Buchs AG, Switzerland	CHF	k	100.00
44	Swisslog Healthcare Holding AG, Buchs AG, Switzerland	CHF	k	100.00
45	Swisslog Healthcare Italy SpA, Cuneo, Italy	EUR	k	100.00
46	Swisslog Holding AG, Buchs AG, Switzerland	CHF	k	100.00
47	Swisslog Italia S.r.l., Milan, Maranello, Italy	EUR	k	100.00
48	Swisslog N.V., Wilrijk, Belgium	EUR	k	100.00
49	Swisslog Technology Center Austria GmbH, Sipbachzell, Austria	EUR	k	100.00
50	Swisslog Technology Center Netherlands B.V., Valkenswaard, Netherlands	EUR	k	100.00
51	Swisslog Technology Center Sweden AB, Boxholm, Sweden	SEK	k	100.00
52	Swisslog Healthcare Netherlands B.V., Apeldoorn, Netherlands	EUR	k	100.00
53	Visual Components Oy, Espoo, Finland	EUR	k	100.00
54	Delfoi Robotics OY, Tampere, Finland	EUR	k	100.00
55	KUKA TR ROBOT TEKNOLOJİLERİ SANAYİ TİCARET ANONİM ŞİRKETİ, ÜMRANİYE/Turkey	TR	k	100.00
North America				
56	KUKA Aerospace Holdings LLC, Sterling Heights, Michigan, USA	USD	k	100.00
57	KUKA Assembly and Test Corporation, Saginaw, Michigan, USA	USD	k	100.00
58	KUKA de Mexico S.de R.L.de C.V., Mexico City, Mexico	MXN	k	100.00
59	KUKA Manufactura S. de R.L.de C.V., Toluca, Mexico	MXN	k	100.00
60	KUKA Robotics Canada Ltd., Mississauga, Canada	CAD	k	100.00
61	KUKA Robotics Corp., Shelby Township, Michigan, USA	USD	k	100.00
62	KUKA Systems de Mexico S. de R.L. de C.V., Toluca, Mexico	MXN	k	100.00
63	KUKA Systems North America LLC, Sterling Heights, Michigan, USA	USD	k	100.00

Name and registered office of the company		Currency	Method of consolidation	Share of equity in %
64	KUKA Toledo Production Operations, LLC, Toledo, Ohio, USA[2]	USD	k	100.00
65	KUKA U.S. Holdings Company LLC, Sterling Heights, Michigan, USA	USD	k	100.00
66	Reis Robotics USA Inc., Carpentersville, USA	USD	k	100.00
67	Swisslog Logistics, Inc., Newport News, USA	USD	k	100.00
68	Swisslog USA Inc., Dover, Delaware, USA	USD	k	100.00
69	Translogic Corp., Dover, Delaware, USA	USD	k	100.00
70	Translogic Ltd. (Canada), Mississauga, Ontario, Canada	CAD	k	100.00
71	Visual Components North America Corporation, Lake Orion, Michigan, USA	USD	k	100.00
Latin America				
72	KUKA Roboter do Brasil Ltda., São Bernardo do Campo, São Paulo, Brazil	BRL	k	100.00
73	KUKA Systems do Brasil Ltda., São Bernardo do Campo, São Paulo, Brazil	BRL	k	100.00
Asia/Australia				
74	KUKA (Thailand) Co., Ltd., Bangkok, Thailand	THB	k	100.00
75	KUKA Automation Equipment (Shanghai) Co., Ltd., Shanghai, China	CNY	k	100.00
76	KUKA Automation Taiwan Ltd., Taipei, Taiwan, Taiwan	TWD	k	100.00
77	KUKA India Pvt. Ltd., Haryana, India	INR	k	100.00
78	KUKA Industries Automation (China) Co., Ltd., Kunshan, China	CNY	k	100.00
79	KUKA Industries Singapore Pte. Ltd., Singapore, Singapore	SGD	k	100.00
80	KUKA Japan K.K., Yokohama, Japan	JPY	k	100.00
81	KUKA Robot Automation Malaysia Sdn BhD, Puchong, Selangor, Malaysia	MYR	k	100.00
82	KUKA Robotics Australia Pty. Ltd., Port Melbourne, Australia	AUD	k	100.00
83	KUKA Robotics China Co. Ltd., Shanghai, China	CNY	k	50.00
84	KUKA Robotics Guangdong Co., Ltd., Foshan, Shunde, China	CNY	k	100.00
85	KUKA Robotics Korea Co. Ltd., Ansan, South Korea	KRW	k	100.00
86	KUKA Robotics Manufacturing China Co. Ltd., Shanghai, China	CNY	k	50.00
87	KUKA Systems (China) Co. Ltd., Shanghai, China	CNY	k	100.00
88	KUKA Systems (India) Pvt. Ltd., Maharashtra, Pune, India	INR	k	100.00
89	KUKA Vietnam Co., Ltd., Hanoi, Vietnam	VND	k	100.00
90	PT Swisslog Logistics Automation, Karet/Setiabudi/DKI Jakarta, Indonesia	IDR	k	100.00
91	Swisslog Malaysia Sdn Bhd, Selangor, Malaysia	MYR	k	100.00
92	Swisslog Asia Ltd., Hong Kong, China	HKD	k	100.00
93	Swisslog Australia Pty Ltd., Sydney, Australia	AUD	k	100.00
94	Swisslog Healthcare Asia Pacific Pte. Ltd., Singapore, Singapore	SGD	k	100.00
95	Swisslog Healthcare Korea Co., Ltd., Bucheon si, Gyeonggi-do, South Korea	KRW	k	100.00
96	Swisslog Healthcare Shanghai Co., Ltd., Shanghai, China	CNY	k	50.00
97	Swisslog Healthcare Trading MEA LLC., Emirate of Dubai, United Arab Emirates	AED	k	49.00

Name and registered office of the company		Currency	Method of consolidation	Share of equity in %
98	Swisslog Middle East LLC, Dubai/United Arab Emirates	AED	k	49.00
99	Swisslog Singapore Pte Ltd., Singapore, Singapore	SGD	k	100.00
100	Chang'an Reis (Chongqing) Robotic Intelligent Equipment Co. Ltd, Chongqing, China	CNY	at	50.00
101	Guangdong Swisslog Technology Co., Ltd., Shunde, China	CNY	at	50.00
102	Otsaw Swisslog Healthcare Robotics Pte. Ltd., Singapore, Singapore	SGD	at	40.00
103	Shanghai Swisslog Technology Co., Ltd., Shanghai, China	CNY	at	50.00
104	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

Independent auditor's report

To KUKA Aktiengesellschaft, Augsburg

Report on the Audit of the Consolidated Financial Statements and of the Group Management Report

Audit Opinions

We have audited the consolidated financial statements of KUKA Aktiengesellschaft, Augsburg, and its subsidiaries (the Group), which comprise the group balance sheet as at 31 December 2022 and the group statement of comprehensive income, group income statement, development of group equity and group cash flow statement for the financial year from 1 January to 31 December 2022, and group notes, including a summary of significant accounting policies. In addition, we have audited the consolidated management report of KUKA Aktiengesellschaft, which is combined with the company's management report, for the financial year from 1 January to 31 December 2022.

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 IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to § [Article] 315e Abs. [paragraph] 1 HGB [Handelsgesetzbuch: German Commercial Code] and, in compliance with these requirements, give a true and fair view of the assets, liabilities, and financial position of the Group as at 31 December 2022, and of its financial performance for the financial year from 1 January to 31 December 2022, and
- the accompanying consolidated management report as a whole provides an appropriate view of the Group's position. In all material respects, this consolidated management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development.

Pursuant to § 322 Abs. 3 Satz [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 consolidated management report.

Basis for the Audit Opinions

We conducted our audit of the consolidated financial statements and of the consolidated management report in accordance with § 317 HGB 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 Consolidated Management Report" section of our auditor's report. We are independent of the group entities in accordance with the requirements of German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions on the consolidated financial statements and on the consolidated management report.

Other Information

The executive directors are responsible for the other information.

The other information comprises

- the statement on corporate governance pursuant to § 289f Abs. 4 HGB (disclosures on the quota for women on executive boards)
- the annual report – excluding cross-references to external information – with the exception of the audited consolidated financial statements, the audited consolidated management report and our auditor's report

Our audit opinions on the consolidated financial statements and on the consolidated management report do not cover the other information, and consequently we do not express an audit opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information mentioned above and, in so doing, to consider whether the other information

- is materially inconsistent with the consolidated financial statements, with the group management report disclosures audited in terms of content or with our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of the Executive Directors and the Supervisory Board for the Consolidated Financial Statements and the Consolidated Management Report

The executive directors are 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 § 315e Abs. 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, the executive directors are 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 (i.e., fraudulent financial reporting and misappropriation of assets) or error.

In preparing the consolidated financial statements, the executive directors are 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, the executive directors are responsible for the preparation of the consolidated 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, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a consolidated 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 consolidated 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 consolidated management report.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and of the Consolidated 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 consolidated 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 audit opinions on the consolidated financial statements and on the consolidated management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with § 317 HGB 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 consolidated 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 consolidated 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 audit opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override 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 consolidated management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an audit opinion on the effectiveness of these systems.
- Evaluate the appropriateness of accounting policies used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.
- Conclude on the appropriateness of the executive directors' 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 consolidated management report or, if such disclosures are inadequate, to modify our respective audit 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 IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to § 315e Abs. 1 HGB.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express audit opinions on the consolidated financial statements and on the consolidated management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinions.

- Evaluate the consistency of the consolidated 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 the executive directors in the consolidated management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors 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 audit 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.

Munich, March 14, 2023

PricewaterhouseCoopers GmbH

Wirtschaftsprüfungsgesellschaft

Jürgen Schumann	ppa. Stefan Postenrieder
German Public Auditor (Wirtschaftsprüfer)	German Public Auditor (Wirtschaftsprüfer)

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.

CAGR
CAGR is the acronym for Compound Annual Growth Rate, i.e. the average annual growth rate of a key performance indicator over a specified period.

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.

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.

Employees
All figures for employees in the annual report are based on the full-time equivalent.

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 Amortized Cost)
Financial liabilities measured at amortized cost.

FVOCI
Financial instruments measured at fair value through other comprehensive income.

FVtPL
Financial instruments measured at fair value through profit or loss.

General industry
General industrial markets not including the automotive industry.

IBOR
Interbank offered rates (IBORs) are average interest rates at which banks can raise loans on the interbank market.

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.

Purchase commitments
Payment obligation from purchases.

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.

SCARA
Selective Compliance Articulated Robot Arm.

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) plus trade receivables, contract assets and receivables for manufacturing orders minus liabilities for trade receivables, contract liabilities and manufacturing orders.

Working capital
Working capital consists of the inventories, trade receivables, other receivables and assets, and the balance of receivables from and payables to 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.

This Annual Report was published on April 28, 2023 and is available in German and English on KUKA Aktiengesellschaft's website. The German version is legally binding in cases of doubt. The report contains forward-looking statements on expected developments. These statements are based on current expectations and 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.

Contact and imprint

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