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MIDEA GROUP CHINA: THE ACQUISITION OF GERMAN ROBOTICS[[1]](#endnote-1)

Wiboon Kittilaksanawong and Ines Sanso Codina wrote this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

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Kuka’s global leadership and expertise in the field of robotics and automation, combined with Midea’s exponential global growth, industrial base and logistics operations, and understanding of consumer markets, will enable the creation of intelligent machines and smart factories that usher in a new era of robotics-based manufacturing.[[2]](#endnote-2)

Paul Fang, chairman and chief executive officer of Midea Group

In January 2017, Midea Group Co. Ltd. (Midea), a large Chinese electrical appliance manufacturer, completed its €4.5 billion[[3]](#endnote-3) (US$4.7 billion) acquisition of German-headquartered KUKA AG (KUKA), the world’s fourth-largest manufacturer of industrial robots and solutions for factory automation, in the largest unsolicited takeover of a German company by a Chinese enterprise.[[4]](#endnote-4) The deal sparked controversy in Germany, as the country was seeing key technologies falling into foreign hands at a time when China was protecting its own companies against foreign takeovers.[[5]](#endnote-5) To mitigate concerns, Midea agreed to enter into a “post-acquisition partnering” agreement with KUKA, whereby its independence was guaranteed until 2023.[[6]](#endnote-6)

In December 2017, less than a year after the deal, the acquired KUKA experienced problems in its European and Asian markets. In China, the unit was under pressure to lower costs in its efforts to become the industry leader. It also needed to gain the Chinese government’s recognition as a local brand to acquire public-sector orders. In Europe, a price war was slowing down orders at its main systems division. This division was also experiencing capacity constraints due to difficulties in finding enough skilled workers to keep up with demand in the United States and Asia. As a Chinese-owned entity and given the growing state influence on foreign companies, some of KUKA’s key German clients in the automotive industry were losing trust in the brand. Its German employees also feared that the China-oriented strategy might result in more jobs being created in China to the detriment of jobs at its German headquarters.[[7]](#endnote-7)

Given these challenges, would Midea’s partnering approach to the acquired KUKA work to achieve both entities’ goals? How should Midea manage KUKA’s autonomy to ensure it maintained clients’ trust and mitigated political concerns, while sufficiently integrating the unit to lower costs in the emerging but highly competitive robotics industry? How should Midea manage the acquired unit after the expiration of the partnering agreement in 2023?

**MIDEA GROUP CO. LTD.**

Midea was a large Chinese conglomerate, manufacturing appliances and selling products in more than 200 countries worldwide, with headquarters in Shunde District, Guangdong province. Listed on the Fortune Global 500 in 2016, Midea was the largest heating, ventilation, and air-conditioning manufacturer in China. The company was founded by Xiangjian He in 1968 as a bottle lid manufacturer. In 1980, it entered into household appliance manufacturing with electric fans and in 1985, produced its first air-conditioner. Since then, Midea had expanded into a wide variety of other electrical home appliances. In 1993, its subsidiary, Guangdong Midea Electric, which handled its core air-conditioning business, was listed on the Shenzhen Stock Exchange. In 2007, Midea opened its first overseas production facility in Vietnam. In 2008, it formed a joint venture with Horizont, a Belarusian microwave producer, to enter the Commonwealth of Independent States market. In 2010, it entered into several joint ventures with Carrier Corporation, an American air-conditioner manufacturer, with the first joint venture based in Egypt and followed by others in Brazil, Argentina, Chile, and India.[[8]](#endnote-8)

In 2012, He resigned, and Paul Fang, the president of Guangdong Midea Electric and the first non-family member, became chief executive officer (CEO).[[9]](#endnote-9) In 2013, the whole group was listed on the Shenzhen Stock Exchange. As sales declined in 2014, Midea started a restructuring plan to improve asset use efficiency. Realizing that competing with low-cost products for a bigger market share was unsustainable, Midea set up a global strategy to transform the company from a household appliance maker to a provider of solution services for system products and integration. Since 2015, the company had automated manufacturing facilities and planned to invest further in automating technology by spending more than $800 million between 2015 and 2020.[[10]](#endnote-10)

With a saturated home market in 2016, Midea acquired Toshiba Corporation’s home appliances division; Clivet S.p.A, an Italian air-conditioner maker; and Electrolux AB’s vacuum cleaner Eureka brand to accelerate its global expansion.[[11]](#endnote-11) As part of its acquisition spree, in the same year, Midea acquired KUKA, aiming to modernize its factories and expand further into robotics and smart home devices. Midea was already using 100 of KUKA’s industrial robots in its factories and logistics centres. Midea had aggressively automated its factories, aiming to reduce the number of employees from 120,000 in 2014 to 80,000 by 2018.[[12]](#endnote-12) According to Andy Gu, vice-president for Midea’s international business, “one of the leading rationales for the deal is rising labor costs. This means efficiency becomes more important for growing our business and for the Chinese economy as a whole.”[[13]](#endnote-13)

**KUKA AG**

KUKA was established in 1898 as “Acetylenwerk für Beleuchtungen in Augsburg,” an acetylene factory to produce lighting for houses and streets in Augsburg, Germany. After inventing gas fusion welding in 1905, KUKA built the first automatic welding system for refrigerators and washing machines; manufactured the first multi-spot welding line for Volkswagen; and established friction, short-cycle, and defined-angle friction welding. In 1973, the company entered the robotics industry with FAMULUS, the world’s first industrial robot and a breakthrough for the automotive industry. It was not until 1982, with the acquisition of LSW Maschinenfabrik GmbH, a manufacturer of high-end assembly systems for the automotive industry, that the company became a leader in robotics innovation (see Exhibit 1).[[14]](#endnote-14)

By 2000, after an intensive merger and acquisition program, the company had become a highly diversified conglomerate, with automation, manufacturing, process, and packaging technologies divisions, and more than 90 subsidiaries around the world. The company had growth potential in several markets, but its profitability was low and its share price was undervalued, making it the perfect target for activist shareholders. In 2003, Guy Wyser-Pratte, an activist shareholder, bought a stake in the company, divested all its activities other than the profitable automation division, and renamed it KUKA, an acronym for “Keller und Knappich Augsburg.” In 2009, Grenzebach, another shareholder activist, bought a stake in the company and appointed Till Reuter as the temporary CEO.[[15]](#endnote-15)

**Till Reuter and a New Strategic Direction**

Reuter did not have much experience as an executive and had no experience in engineering. He had previously worked as a lawyer in New York, Sao Paulo, and Frankfurt, and as an investment banker at Morgan Stanley, Deutsche Bank, and Lehman Brothers. However, Grenzebach recommended Reuter to the supervisory board and appointed him as KUKA’s financial advisor. Reuter was active during the shareholders’ meetings, often criticizing the previous CEO’s leadership and asking for different ways to build shareholders’ trust and raise capital.

After becoming the temporary CEO of KUKA, Reuter issued a profit warning, raised €28 million in share capital, and fired the managing director of each division. To decrease the company’s reliance on the automotive industry, Reuter entered into other sectors, increased the company’s presence in the United States and Asia, and started to prepare for the Internet of Things (IoT). He laid off employees and changed the management team. According to Reuter, “In robotics, people in the past were selling products and components. But if you are moving to solutions and, really, selling IoT services, you need people who can sell the whole solution, including the services. What can you do?”[[16]](#endnote-16) Despite his aggressive and fast-acting leadership style, and KUKA’s net loss of €76 million in 2009, Reuter was appointed KUKA’s permanent CEO in 2010.[[17]](#endnote-17)

During 2013 and 2014, KUKA made a series of acquisitions, including Switzerland-based Swisslog, which provided KUKA with better access to the healthcare and logistics markets.[[18]](#endnote-18) Following the Swisslog acquisition, Grenzebach and Wyser-Pratte sold the majority of their shares in KUKA.[[19]](#endnote-19) Voith GmbH, a German family-owned engineering company then became the majority shareholder. The new shareholding structure reduced the share overhang risk of the past years and, as a result, the KUKA’s share price started to rise.[[20]](#endnote-20)

**Business Divisions**

KUKA was made up of three divisions, in descending order of sales revenue, KUKA Systems, KUKA Robotics, and Swisslog, which were supported by subsidiaries across more than 50 countries (see Exhibit 2). Driven by strong research and development (R&D), KUKA had managed to stay ahead of stiff competition across industries.[[21]](#endnote-21)

KUKA Systems offered individual system components, tools, and automation systems for production in the automotive industry. It was a market leader in North America, with production facilities also in Europe and China. KUKA Robotics manufactured and distributed core components of automation for the production of industrial robots and collaborative robots (cobots). This division served the automotive and general industries, including electronics, consumer goods, metal, healthcare, and logistics. Swisslog provided e-commerce, logistics, and healthcare automated solutions in more than 50 countries.[[22]](#endnote-22)

**Corporate Strategy**

KUKA pursued diversification in both products and geographic markets. In terms of products, although KUKA was a market leader in the automotive industry, the company had increased its emphasis in other general industries such as aerospace, electronics, consumer goods, healthcare, and e-commerce. The degree of automation in these sectors was still relatively low, compared with the automotive industry, but these new sectors offered higher potential for revenue growth. Geographically, the company wanted to diversify its business operations into new markets and regions. Asia, and particularly China, was one of KUKA’s most important markets. In 2016, KUKA generated sales revenue of €450 million in China, and aimed to reach €1 billion by 2020.[[23]](#endnote-23) The company was the world’s largest producer of robots for automobile manufacturing with a market share of 14 per cent, while aspiring to capture the top spot.[[24]](#endnote-24)

Apart from the corporate diversification, in line with the Industry 4.0, KUKA aimed to support its customers by connecting the real and virtual production worlds and ensuring safe collaboration between humans and robots. Specifically, the company provided comprehensive automation and digitization know-how through cloud-based networking systems.[[25]](#endnote-25)

**MIDEA’S ACQUISITION OF KUKA**

In August 2015, Midea bought a small stake of 5.4 per cent in KUKA, which it further increased to 10.2 per cent in February 2016 through its subsidiary, MECCA International (BVI) Limited.[[26]](#endnote-26) Just four months later, in June 2016, Midea made a takeover bid of €4.5 billion, representing a premium of 36 per cent of KUKA’s share price on the day before the offer to KUKA’s shareholders.[[27]](#endnote-27) Voith GmbH, one of KUKA’s biggest shareholders, had decided to sell its stake of 25.1 per cent in KUKA, thereby paving the way for the acquisition by Midea.[[28]](#endnote-28)

However, Midea needed to obtain antitrust and economic approvals in the countries where KUKA operated. The deal was seen as highly controversial in Germany and throughout Europe. Germany was seeing many of its key technologies falling into foreign hands, while, at the same time, China was protecting its own companies against foreign takeovers. Some German politicians worried that the country’s car industry could be undermined as KUKA was making robots used by Audi, BMW, and the U.S. aircraft manufacturer Boeing. But the reality was that Germany could not launch a formal probe under German export laws into the planned sale, given the lack of evidence that the takeover would threaten “the security and the public order of Germany.”[[29]](#endnote-29)

Angela Merkel, chancellor of Germany, said that she would not block the deal, and nothing was stopping the deal.[[30]](#endnote-30) While officials in Brussels and Berlin opposed the takeover, Reuter welcomed the deal, saying to the company’s shareholders, “We have set ourselves a goal of reaching a billion euros in sales by 2020. A partner who supports this strategy and provides us with better market access could be a considerable growth driver for KUKA.”[[31]](#endnote-31)

**The Partnering Approach to Post-Acquisition Integration[[32]](#endnote-32)**

The takeover was completed in January 2017, after the U.S. authorities approved the deal. However, KUKA had to first sell its aerospace technology division in North America to fulfill U.S. security requirements.[[33]](#endnote-33) Also, to reduce politicians’ concerns in Germany, Midea signed a legally binding agreement guaranteeing that KUKA would remain independent until the end of 2023 (see Exhibit 3). Under the agreement, Midea agreed not to pursue a domination agreement, restructuring, or the delisting of KUKA; to commit to KUKA’s existing strategy and its executive board’s independence; to preserve existing facilities and jobs in Germany, including at the company’s headquarters; and to take necessary steps to protect data of KUKA and its business partners.[[34]](#endnote-34)

Reuter stated:

We conducted intensive negotiations with Midea and ensured that the announced assurances have now been made legally binding. The agreed term of 7.5 years is much longer than what is customary. It protects the interests of our company, our business partners, our employees and our shareholders until well into the next decade. For us, it was also important to find a good solution for our business partners’ data security. We’ve also succeeded in that with the ring-fencing agreement, the cornerstones of which have already been negotiated in a binding manner.[[35]](#endnote-35)

The cornerstones of such a ring-fencing agreement were to regulate the protection of both KUKA’s know-how and the confidential data of customers and suppliers. Midea and other third parties were not allowed to access or move such databases to other locations. In assessing the bid, KUKA considered not only the acquisition price and the legitimate interests of its stakeholders, including employees and customers, but also the strategic logic of transaction.[[36]](#endnote-36)

The major driver for KUKA to engage with Midea was its existing growth strategy, which was based on strengthening its presence in the Chinese market, pursuing Industry 4.0, and expanding activities in the fields of logistics and service robots. According to Reuter, “Together with Midea, we’ll be able to implement our existing strategy even better. At the same time, we will remain a German company.” Meanwhile, Midea had committed to support KUKA’s growth strategy by providing better access to the Chinese market. Under the agreement, Midea would also support KUKA’s other growth projects, including an increase in the research and development (R&D) workforce, expansion of existing R&D locations, and investment in digitization. Both entities also expected to collaborate in the logistics and service robot businesses.[[37]](#endnote-37)

**The Integration Challenges and the Departure of Till Reuter**

Less than a year after the acquisition, Midea realized the problems at KUKA’s headquarters in Germany and its operations in Europe and Asia. In November 2017, Reuter announced plans to cut 250 jobs at KUKA Systems due to fierce competition, which was slowing down orders. Many employees were skeptical about job security, even though Reuter had assured them that the China-oriented strategy would not come at the expense of its workers in Germany. The atmosphere was so tense that some managers in the acquired unit had begun to leave the division. The resulting capacity constraints, costly delays on some projects in the most important U.S. and Asia markets, and the fierce competition from low-cost Chinese competitors had prompted the division to undergo restructuring.[[38]](#endnote-38)

In December 2018, Reuter agreed to terminate his office as CEO earlier than expected. It was believed that problems had arisen from disputes over the strategy for KUKA and Midea’s joint venture in the greatest potential Chinese market for robotics and industrial automation. While both entities had agreed in the beginning to aim for KUKA becoming number one in China, Reuter admitted that due to weaker growth in Asia, new emission rules in Europe, and fierce competition, the acquired unit’s growth had stalled. He also kept a close eye on the effects of the U.S.–China trade dispute. Reuter said that his most difficult job had been changing staff as the company switched directions and strategies. After his departure, the consolidated company’s leadership and direction might be on a distinctly clearer path under Chinese management. However, his successor could be politically sensitive.[[39]](#endnote-39)

Despite Midea’s earlier reassurances of a hands-off approach to the acquired unit, Chinese companies’ increasing number of acquisitions, many of which targeted high-technology German companies, had heightened the German intelligence agency’s concerns over the potential loss of the country’s key technologies.[[40]](#endnote-40) Moreover, Germany decided to tighten controls on foreign investments from outside the European Union to protect strategic industries. In particular, foreign companies seeking to buy a stake of 25 per cent or more in a company would need to undergo deeper scrutiny, and Germany was considering tightening those rules and further reducing the threshold.[[41]](#endnote-41)

Germany’s takeover rules defined “threat to public order” to refer to acquisitions that involved critical infrastructure, such as domestic companies that developed software for electricity and power stations, water supply, railways, telecommunications, hospitals, banks, and airports. Moreover, the government had up to four months to review the takeover plans (i.e., twice as long as was previously allowed), during which time information could be gathered from intelligence services.[[42]](#endnote-42)

**THE ROBOTICS INDUSTRY**

The first industrial robot, Unimate, was invented by George Charles Devol in 1954. It was installed in a General Motors Company factory. Its success attracted Ford Motor Company’s (Ford’s) interest, paving the way for the industrial robotics revolution. The demand for industrial robots had accelerated in response to the availability of cheaper capital, demographic changes, and increasing wage levels, and thus the trend toward automation (see Exhibit 4). After the global financial crisis from 2008–09, the lower interest rates that had been set around the world to incentivize investment and consumption had encouraged manufacturers to invest in efficiency improvements.[[43]](#endnote-43) Aging populations meant that workforce growth rates were expected to decline, particularly in China, Germany, Japan, and South Korea, while the labour costs in labour-intensive manufacturing countries such as China had started to increase.[[44]](#endnote-44)

A new type of robot, known as collaborative robots (cobots), which relied on sensors and other means of collision detection, had expanded their presence in factories. Their programming was less sophisticated, the overall costs were lower, and they offered more flexibility than traditional industrial robots. These cobots were used in manufacturing and service operations. Service robots comprised professional robots, which had a significant impact in areas such as agriculture, surgery, logistics, and public relations, while personal home robots helped people in their everyday lives. The market for service robots was expected to grow 20–25 per cent from 2018–2020.[[45]](#endnote-45)

**Main Product Market for Robotics Companies**

The most important customers for robotics companies were car manufacturers. Since the global financial crisis, investments in new production capacity in emerging markets and in production modernization in major car-producing countries had led to an increase in robotic installations. The automotive industry thus had become mature with a greater degree of automation than other industries.[[46]](#endnote-46) Although the automotive industry remained the main customer for robotics, its yearly demand for robots had increased only 4.3 per cent in 2015 and only 5.1 per cent in 2016, compared with, during the same years, 41.3 per cent and 40 per cent increases in the demand for robots in the electronics industry (see Exhibit 5). The popularity of smartphones, tablets, and other electronic devices had led to such an explosive growth in the electronics industry.[[47]](#endnote-47) Due to intense competition, labour-intensive operations were increasingly being automated to reduce costs. Meanwhile, established companies had begun to develop their own industrial robots, such as the Foxbot from Hon Hai Precision Industry Co., Ltd., the world’s biggest contract electronics maker, and Daisy, the iPhone-recycling robot, from Apple Inc.[[48]](#endnote-48)

In 2016, KUKA’s customer portfolio mainly comprised car manufacturers, which accounted for 50 per cent of its total robot sales. Other customers operated in a wide range of industrial sectors, including food, consumer products, energy, retail, medicine, engineering, and chemicals.[[49]](#endnote-49)

**Main Geographic Market for Robotics Companies**

In 2016, China, South Korea, Japan, the United States, and Germany represented 74 per cent of the world’s total robot sales volume. By 2016, China, the world’s largest robot market since 2013, had expanded its leading position, contributing 30 per cent of the total robot supply—an increase of 27 per cent from 2015.[[50]](#endnote-50) It was expected that by 2020, 40 per cent of the world’s industrial robots would go to China (see Exhibit 6). The main drivers were increasing labour wages in the manufacturing sector, low automation in most Chinese factories, and an aging population. Given China’s lack of core technology, it had relied heavily on foreign supply for many years and thus had to pay a higher price for imported industrial robots compared with developed countries where the demand was lower. More than 60 per cent of all robots imported by Chinese manufacturers were from major producers: ABB, KUKA, Fanuc, and Yaskawa.[[51]](#endnote-51)

**Made in China 2025**

In 2015, to reduce its dependency on foreign supply and in an attempt to become one of the world’s top technological industrial nations, the Chinese government devised a strategic plan called “Made in China 2025,” which aimed at having 40 per cent of Chinese products’ core components made in China by Chinese companies by 2020 and 70 per cent by 2025.[[52]](#endnote-52) This strategy identified 10 key sectors, including robotics. Ultimately, the government wanted its domestic industry to be able to manufacture robots to the same quality as Japanese or European robots but at cheaper prices. The strategy included acquiring foreign companies and adopting the principles of Industry 4.0.[[53]](#endnote-53) Chinese manufacturers that adopted Industry 4.0 were expected to respond quickly to changing consumer needs, while reducing production overhead and costs. In China, the advantages of low labour costs and a low labour-to-production ratio had been diminishing; therefore, Industry 4.0 might help the industry to become more automated.[[54]](#endnote-54)

**KUKA AND ITS COMPETITIVE LANDSCAPE**

KUKA’s presence in China dated back to 1997 when the company had used the factory space of its former shareholder, Grenzebach Group. In 2014, KUKA ramped up a local production site with kick-off orders for 1,375 robots from Chinese automotive customers.[[55]](#endnote-55) By 2016, KUKA had approximately a 14 per cent market share in robots, placing it among China’s top three suppliers. KUKA aimed both to become the number one robotics company in China and to derive more than €1 billion in sales revenue from this country alone by 2020.[[56]](#endnote-56) To achieve its goal, KUKA was broadening its presence in China by increasing the number of employees from 1,101 in 2015 to 1,289 in 2016, and 1,373 in 2017.[[57]](#endnote-57)

In 2016, KUKA remained the leading robotics company in the automotive industry worldwide and among the top five robot makers for general industry, competing with ABB Limited, b+m surface systems GmbH, FANUC Corporation, and Yaskawa Electric Corporation for global market share (see Exhibit 7).[[58]](#endnote-58) The robotics industry was becoming highly competitive as a result of new technologies and particularly the Made in China 2025 initiatives that encouraged thousands of new Chinese companies to make industrial and service robots. Although not all of the companies would succeed, KUKA and other global players could not ignore them. The top four Chinese industrial robotics vendors were reported to have experienced an extremely high growth of 20 per cent during 2015–16 with an expected similar figure for the next few years, while, during the same period, their Japanese and European counterparts were either contracting or experiencing a low single-digit growth. Overseas expansion of Chinese warehousing robot companies and China’s heavy push into the fifth generation of cellular mobile communications and artificial intelligence were believed to spur such growth.[[59]](#endnote-59)

With the advance of new technologies, established companies, such as Apple Inc. and Lenovo Group Limited, had also started to create their own industrial robots while start-ups were launching innovative robotic models. Technology was becoming faster and cheaper, and robots were no exception, and their price was already in decline. Investing in automation technology thus became possible for an increasing number of companies.[[60]](#endnote-60)

**THE ROAD AHEAD AND CHALLENGES**

Due to stiff international competition, leading robotics manufacturers were expecting their orders and margins to shrink. Given the partnering approach to the acquisition, Midea needed to figure out how its acquired, independent unit could lower costs to remain competitive. According to Gu, “KUKA has a reputation for reliability, but as you know, as a German company, they are not really well-known for low-cost products. We need to work very hard to figure out how we can really reduce these costs.”[[61]](#endnote-61) According to some media, being a Chinese-owned company was leading to distrust among some of the company’s important clients in the automotive industry. They were concerned about keeping research centres in China, given its tightening Internet security laws and growing state influence on foreign companies.[[62]](#endnote-62)

KUKA’s robot revenues from the automotive industry had fallen from 80 per cent to 30 per cent since Reuter took over the company in 2009, and accounted for approximately 50 per cent of total revenues in 2016.[[63]](#endnote-63) Although the unit wanted to continue being number one in the dominated automotive industry, it needed to also focus on other industries that offered better growth opportunities, such as electronics and healthcare. Midea, however, had other plans for KUKA—building personal assistant robots for the consumer market.[[64]](#endnote-64) But, KUKA had never built humanoid or quadruped robots, not to mention low-end robots that collected dust or cut grass. It could be a significant challenge for a high-tech entity such as KUKA to enter a highly competitive mass market. Was this move the best for the acquired unit, KUKA, or for the parent company, Midea, which had long planned to develop smart home devices?

In March 2018, Midea revealed that in collaboration with its acquired unit, KUKA, it would set up three joint ventures in China, with each holding a 50 per cent stake in the venture, to expand the business of industrial robots, healthcare, and warehouse logistics in China.[[65]](#endnote-65) Specifically, the joint venture aimed to be number one in robotics in China. To achieve a total capacity of 75,000 robots (with a total capacity of 100,000 robot units including existing capacities) and automated guided vehicles by 2024, the venture would build a robot technology park in the South China Shunde District, where Midea, the parent company, was located.[[66]](#endnote-66)

Midea was believed to have helped the acquired unit achieve its objective of becoming the number one supplier in China by tapping into its Chinese customer base, suppliers, and distribution chain. Without Midea, KUKA was not alone in its hunt for a bigger share of the Chinese market. Not only did it compete against global rivals such as ABB Limited, FANUC, and Yasakawa Electric Corporation but also against local rivals, such as E-Deodar Robot Equipment Co., Ltd. and SIASUN Robot & Automation Co., Ltd., which sold their robots for about one-third of the price charged by European companies.[[67]](#endnote-67) Midea’s post-acquisition partnering approach had preserved the autonomy between the two entities; however, would Midea be able to continue working with its acquired unit, KUKA, to realize its objectives, including becoming number one in China?

**Exhibit 1: KUKA’s innovationS in robotics technology, 1973–2016**

|  |  |
| --- | --- |
| **Year** | **Innovation** |
| 1973 | “FAMULUS,” the electromagnetic robot with six axes |
| 1985 | Single-armed robot without parallelogram |
| 1996 | Real-time PC-based robot controller |
| 1998 | Long-range heavy payload robot |
| 1999 | Robot remote diagnostics via Internet |
| 2000 | Integration of soft PLC |
| 2003 | Entertainment robots |
| 2004 | Co-operative robots |
| 2005 | Safe robots |
| 2006 | Lightweight robots |
| 2007 | Robot titan (1 tonne) |
| 2010 | Quantec KR C4 (a robot controller for high payloads) |
| 2012 | Agilus (a small robot with low payloads but high efficiency and speed) |
| 2016 | KR 3 Robot (one of the fastest robots) |

Note: PC = personal computer; PLC = programmable logic controller.

Source: Created by the case authors based on “KUKA Robot History,” Robot Worx: A Scott Company, accessed June 17, 2019, https://www.robots.com/articles/kuka-robot-history.

**Exhibit 2: KUKA’s KEY FINANCIAL FIGURES, 2015–2017**

**(in MILLIONs of €)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Key Financials** | **2015** | **2016** | **Change (%)** | **2017** | **Change (%)** |
| **Sales Revenue** | | | | | |
| KUKA Robotics | 909.6 | 993.5 | 9.2 | 1,200.6 | 20.8 |
| KUKA Systems | 1,471.7 | 1,395.5 | (5.2) | 1,579.2 | 13.2 |
| Swisslog | 620.8 | 593.5 | (4.4) | 763.7 | 28.7 |
| **Orders Received** | | | | | |
| KUKA Robotics | 891.2 | 1,088.8 | 22.2 | 1,223.3 | 12.4 |
| KUKA Systems | 1,428.1 | 1,644.6 | 15.2 | 1,530.2 | (7.0) |
| Swisslog | 551.8 | 742.6 | 34.6 | 926.2 | 24.7 |
| EBIT | 135.6 | 127.2 | (6.2) | 102.7 | (19.3) |
| Profit | 86.3 | 86.2 | (0.1) | 88.2 | 2.3 |
| Order Backlog | 1,639.0 | 2,048.9 | 25.0 | 2,157.9 | 5.3 |
| Number of Employees | 12,300.0 | 13,188.0 | 7.2 | 14,256.0 | 8.1 |

Note: € = euro; €1 = US$1.04 on January 1, 2017; EBIT = earnings before interest and taxes.

Source: Created by the case authors based on KUKA, *Annual Report 2017: Beyond Automation*, accessed November 13, 2018, www.kuka.com/en-de/investor-relations/reports-and-presentations.

**Exhibit 3: OVERVIEW OF MIDEA’s LEGALLY BINDING INVESTOR AGREEMENT ON its ACQUISITION OF KUKA**

|  |  |
| --- | --- |
|  | **Agreed Topics** |
| A.1 | • Midea to support KUKA’s strategy as well as its growth in China, Industry 4.0, logistics, and service robot business development  • Midea to increase KUKA’s R&D workforce at new and existing locations |
| A.2 | • Midea to maintain independence of original KUKA’s executive board and management team |
| A.3 | • Midea to recognize KUKA’s joint decisions, while being adequately represented on the supervisory board  • Midea to maintain a specific number of independent members on the supervisory board, according to the German code of corporate governance |
| A.4 | • Midea to maintain a broadly diversified shareholder base and a significant free float  • Midea to ensure no domination agreement or delisting |
| A.5 | • Midea to continue KUKA’s dividend policy  • Midea to ensure independence of KUKA’s financing |
| A.6 | • Midea to protect KUKA’s brand, its property rights, and its R&D obligations  • Midea to protect data of KUKA’s business partners with a ring-fencing agreement |
| A.7 | • Midea to retain KUKA’s headquarters in Augsburg and other German and international locations in the KUKA Group |
| A.8 | • Midea to ensure it will not pursue any corporate restructuring |
| A.9 | • Midea to retain KUKA’s workforce and employees  • Midea to continue company agreements, collective bargaining agreements, and other agreements regarding employment conditions |

Note: R&D = research and development.

Source: Created by the case authors based on Till Reuter and Peter Mohnen, “Press Conference of KUKA Aktiengesellschaft: Signing of an Investor Agreement with Midea—Publication of the Joint Reasoned Opinion on Midea’s Takeover Offer for KUKA,” June 29, 2016, accessed November 13, 2018, www.kuka.com/en-de/investor-relations/reports-and-presentations; “KUKA Signs Investor Agreement with Midea and Recommends Acceptance of the Offer,” Kuka: press release, June 28, 2016, accessed November 13, 2018, www.kuka.com/en-de/press/news/2016/06/investor-agreement-midea.

**Exhibit 4: WORLDWIDE ANNUAL SHIPMENTS OF INDUSTRIAL ROBOTS BY REGION,**

**2007–2016 (in THOUSANDs of UNITS)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Asia/Australia** | **Europe** | **Americas** | **Total** |
| 2007 | 58 | 35 | 20 | 113 |
| 2008 | 60 | 35 | 17 | 112 |
| 2009 | 30 | 20 | 9 | 59 |
| 2010 | 70 | 31 | 17 | 118 |
| 2011 | 89 | 44 | 26 | 159 |
| 2012 | 85 | 41 | 28 | 154 |
| 2013 | 99 | 43 | 30 | 172 |
| 2014 | 134 | 46 | 33 | 213 |
| 2015 | 161 | 50 | 38 | 249 |
| 2016 | 191 | 56 | 41 | 288 |

Source: Created by the case authors based on “Executive Summary World Robotics 2017 Industrial Robots,” IFR: International Federation of Robotics, 15, accessed November 14, 2018, <https://ifr.org/downloads/press/Executive_Summary_WR_2017_Industrial_Robots.pdf>.

**Exhibit 5: annual worldwide supply of industrial robots, 2014–2016 (in thousands of units)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Industry** | **2014** | **2015** | **Change (%)** | **2016** | **Change (%)** |
| Automotive | 94 | 98 | 4.3 | 103 | 5.1 |
| Electrical/Electronics | 46 | 65 | 41.3 | 91 | 40.0 |
| Metal | 21 | 29 | 38.1 | 29 | 0.0 |
| Chemical, Rubber, and Plastics | 17 | 20 | 17.6 | 20 | 0.0 |
| Food | 7 | 7 | 0.0 | 8 | 14.3 |
| Others | 11 | 15 | 36.4 | 19 | 26.7 |
| Unspecified | 24 | 20 | (16.7) | 24 | 20.0 |

Source: Created by the case authors based on “How Robots Conquer Industry Worldwide,” IFR: International Federation of Robotics, 7, September 27, 2017, accessed November 14, 2018, https://ifr.org/downloads/press/Presentation\_PC\_27\_Sept\_2017.pdf.

**Exhibit 6: annual shipments of industrial robots in selected countries, 2015–2020 (actual and projected)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Country** | **2015** | **2016** | **2017\*** | **2018\*** | **2019\*** | **2020\*** | **Change 2017/2016** | **CAGR 2018–2020** |
| China | 68,556 | 87,000 | 115,000 | 140,000 | 170,000 | 210,000 | 32% | 22% |
| South Korea | 38,285 | 41,373 | 43,500 | 42,000 | 44,000 | 50,000 | 5% | 5% |
| Japan | 35,023 | 38,586 | 42,000 | 44,000 | 45,000 | 48,000 | 9% | 5% |
| United States | 27,504 | 31,404 | 36,000 | 38,000 | 45,000 | 55,000 | 15% | 15% |
| Germany | 19,945 | 20,039 | 21,000 | 21,500 | 23,500 | 25,000 | 5% | 6% |

Note: \* = forecast figures; CAGR = compound annual growth rate.

Source: Created by the case authors based on “How Robots Conquer Industry Worldwide,” IFR: International Federation of Robotics, September 27, 2017, accessed November 14, 2018, https://ifr.org/downloads/press/Presentation\_PC\_27\_Sept\_2017.pdf.

**Exhibit 7: Leading companies in the global industrial robot market in 2016, based on revenue from industrial robot sales (in millions of €)**

|  |  |
| --- | --- |
| **Company** | **Revenue** |
| ABB Ltd. | 6,944 |
| b+m surface systems GmbH | 3,800 |
| FANUC Corporation | 1,600 |
| YASKAWA Electric Corporation | 1,370 |
| KUKA AG | 910 |
| Nachi Robotic Systems Inc. | 156 |
| WITTMANN Group | 145 |
| Yamaha Corporation | 76 |
| SIASUN UAV | 59 |
| Universal Robots | 56 |
| igm Robotic Systems, Inc. | 50 |

Note: € = euro; €1 = US$1.04 on January 1, 2017.

Source: Created by the case authors based on I. Wagner, “Global Industrial Robot Market: Key Companies by Related Revenue 2017,” Statista, last edited February 25, 2019, accessed November 14, 2018, www.statista.com/statistics/257177/global-industrial-robot-market-share-by-company/.

ENDNOTES

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