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M&A market report 1H 2019

Industry 4.0 in the DACH Region

INDUSTRY 4.0: COMING OF AGE

Yesterday's buzzword, today's reality

Industry 4.0 has become an integral part of business for key technology giants: Bosch Rexroth, Festo, PTC and Siemens, to name a few, are all turning yesterday's promise of connected and intelligent manufacturing technologies into today's reality. In fact, we are already witnessing manufacturing facilities capable of producing individually configured products at unit prices akin to those of series production. This expansion is also reflected in the increasing standardisation of Industry 4.0 processes, with bodies such as the Standardization Council Industrie 4.0 (SCI 4.0) forming in the DACH region and internationally.

Data management capabilities remain at the core of the smart factory evolution: connectivity, transmission, smoothing, processing, evaluation and storage of data all contribute to the rollout of new technologies. However, the extreme increase in data volume presents a challenge for existing systems, posing the question: "how do we intelligently connect passive data (e.g. ERP records) to the large amounts of variable data gathered by high-tech sensorics in an internet of things (IoT) setting?"

Companies that find the best solutions to utilise data resources will write the future of intelligent manufacturing. Smart M&A strategies play a crucial role in the development of Industry 4.0 by allowing innovative emerging players to leverage additional funding or strategic partnerships with global industry leaders. On the other side, industry leaders use M&A to acquire key technologies to stay ahead of the competition or even reposition themselves in the market.

The next challenge

To improve the utility of immense volumes of data (e.g. convert "dirty" data), and introduce better prediction mechanisms and safety, artificial intelligence is the key. It will enhance the cyber-physical systems of Industry 4.0. As such, it is the next step in the evolution of smart factories.

Transaction Volume

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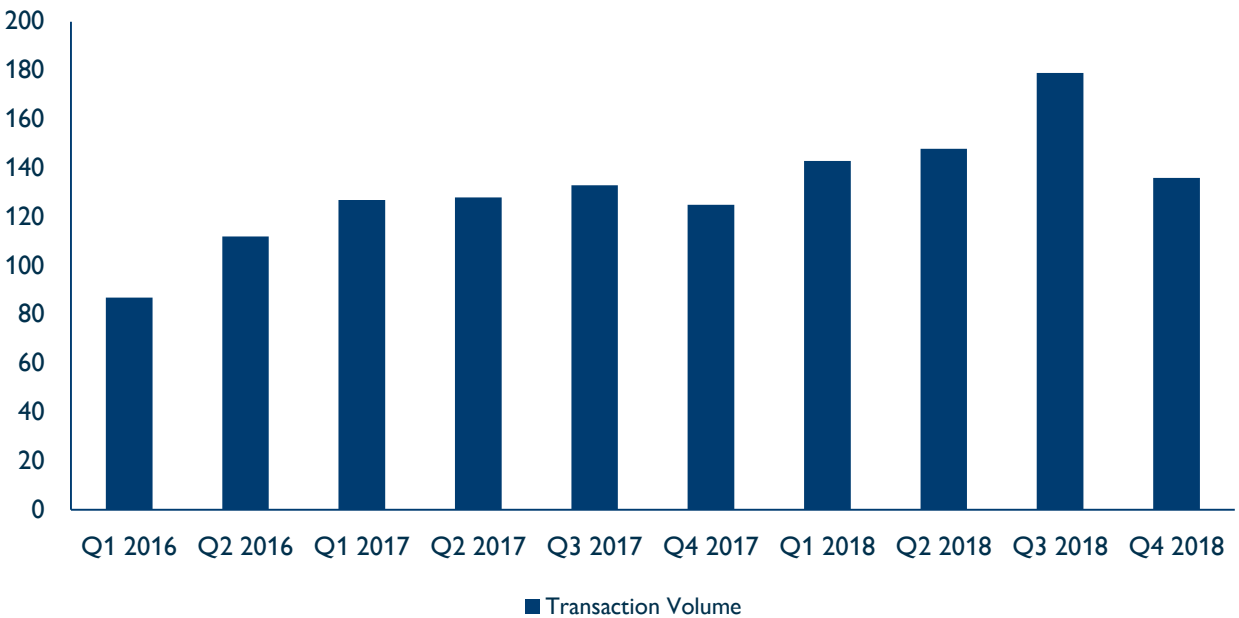
ARTIFICIAL INTELLIGENCE: THE NEXT STEP

Artificial intelligence will play a critical role in the future of Industry 4.0 as it will allow us to maximise the utility of connected systems (sensorics, IoT, etc.) and gathered data. Machine learning allows for large quantities of data to be used in making predictions and optimising manufacturing processes. Capabilities such as pattern recognition and learning from experience will become integral parts of the smart factory.
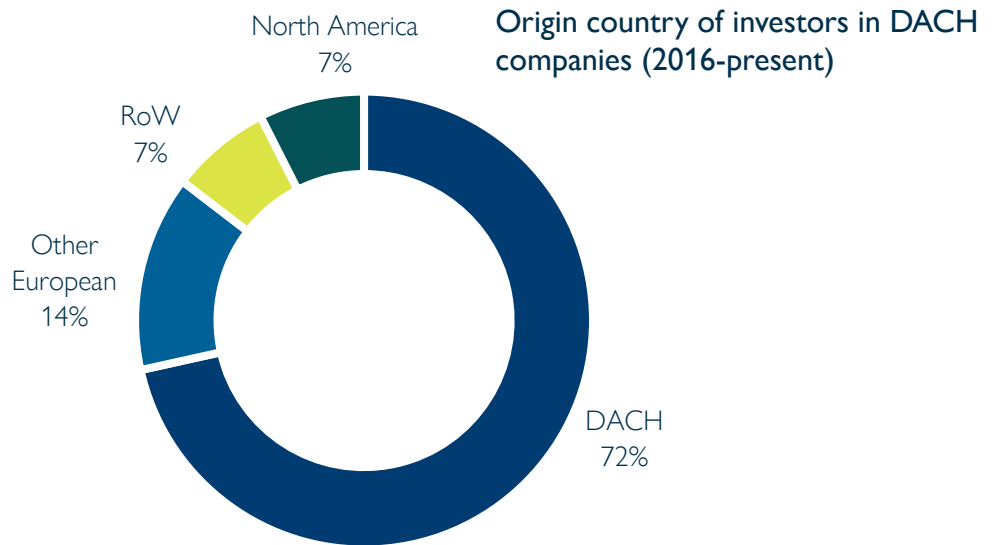
AI-specialised companies are on the rise and well sought-after by strategic and financial investors, with many venture capital firms buying in too.

Selected recent acquisitions in the artificial intelligence segment				
Date	Acquirer / Investor	Target	Country	Short description
12/2018	swisscom Ventures / Zürcher Kantonalbank	scailyte	Switzerland	AI software for single-cell data analysis
12/2018	BOSCH Robert Bosch Venture Capital GmbH et al.	GRAPHCORE	United Kingdom	First processor designed specifically for machine intelligence training
11/2018	ptc	FRUSTUM	United States	Generative design AI technology
11/2018	Porsche family	TAWNY	Germany	Emotion AI technology
10/2018	Knauf family	pmOne	Germany	AI & corporate performance mgmt.
09/2018	INNOGY VENTURES	AKSELOS	United States	Predictive technology for digital twins
09/2018	PALADIN CAPITAL GROUP et al.	TERAKI	Germany	Optimisation for AI schemes and algorithms
09/2018	M12 et al.	twentybn	Germany	Intelligent avatars and touchless systems
09/2018	EMAG	anacision	Germany	Data analytics and AI
08/2018	DEW21	GreenPocket	Germany	Smart energy software

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GEOGRAPHICAL BREAKDOWN

Origin country of investors in DACH companies (2016-present)

North America
7%

RoW
7%

Other European
14%

DACH
72%

4%

China-inbound activity accounts for approximately two thirds of the 7 per cent of DACH M&A activity undertaken by investors located outside of Europe and North America, with a marked increase in deals over the past decade in this sector. With Chinese investment shifting in character from acquiring consumer brands to building out a European presence in high-tech process, deals like the $5 billion tie-up between German robotics giant KUKA and Chinese home appliance manufacturer Midea underline the drive for DACH-based Industry 4.0 assets.

DACH-outbound investments also occur in the Industry 4.0 ecosystem

In October 2018, HAHN Group, a German industrial automation and robotics specialist, invested $10 million in the Israeli firm KITOV Systems, a developer in the field of AI-based automated visual inspection.

The company develops a universal solution that identifies defects in 3D geometry using advanced machine vision, AI and deep learning technologies. The product reduces manufacturing expenses, eliminates inefficiencies and improves yield without the need for programming, machine vision, or automation expertise.

The acquisition strengthens HAHN Group's position in the field of industrial internet of things (IIoT) and digitalisation.

HAHNGROUP

ACQUIRED

KITOV
SYSTEMS

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SUB-SECTOR BREAKDOWN

Automotive
OEMs and Tier 1 suppliers, other automotive suppliers, embedded technology.

Robotics & Machinery
Factory automation, robots, heavy equipment.

Medical Technology
High-tech medical devices, minimally invasive surgery enablers.

CleanTech
Renewable energy technology, clean energy components & materials.

Smart Building & Construction
Advanced materials, connected home and factories, building equipment.

Robotics & Machinery 43%

Automotive 22%

Smart Building & Construction 16%

CleanTech 4%

Medical Technology 15%
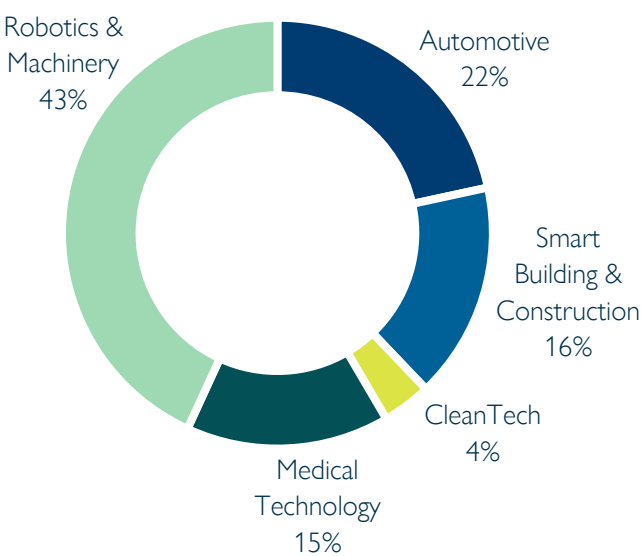
This report apportions all Industry 4.0 deals into five distinct sub-sectors: Automotive, Smart Building & Construction, Cleantech, Medical Technology and Robotics & Machinery, with the breakdown expressed as average proportion since 2016.

The sheer range of technologies that power industrial processes, as well as the drive to displace slower-moving legacy players, has led to a sharp increase in start-ups with truly innovative Industry 4.0 solutions. However, this is just the beginning as other sectors will be added as they inevitably make use of artificial intelligence.

Start-ups Exploring Industry 4.0

Automotive	Smart Building & Construction	CleanTech	Medical Technology	Robotics & Machinery
ARGUS CYBER SECURITY	ring	sunrun	Mazor Robotics	KNIGHTSCOPE
cruise	nest	First Solar.	Masimo	3DR
Airbiquity	Control4	vivint.Solar	MEDABLE	anki

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AUTOMOTIVE: SELECTED DEALS

Bosch acquires German electro motors manufacturer EM-motive in January 2019

With 450,000 electro motors produced since its foundation in 2011, EM-motive stands as one of the most successful manufacturers in Europe today. The company serves a broad customer base, including Daimler, Fiat, Volvo, Peugeot, Porsche and StreetScooter. The acquisition positions Bosch to gain much broader exposure in the sector and is part of the group's strategy to establish a leading position in electric mobility.

motec ventures invests in Israeli smart mobility radar sensor developer RFISee in December 2018

RFISee develops the world's first high resolution 4D imaging-radar-on-1-chip with the goal of becoming the next generation ears and eyes for autonomous vehicles, and positioning the product as a mandatory safety device for cars to reach five safety stars. motec ventures continues to seek interesting investment opportunities in the smart mobility sector.

WayRay, a Swiss developer of complex augmented reality (AR) hardware, receives $80 million in Series C funding round led by Porsche in September 2018

WayRay is developing the first holographic AR navigation system for vehicles. The high technology (smart) glass can also be utilised in a wide variety of industries (e.g. construction). Since its inception in 2012, the company has raised $100 million in funding.

Vinli, a US connected car platform developer, receives $6.5 million in Series A funding round led by Samsung Venture Investment Corp. in June 2018

Vinli provides one of the most advanced connected car hardware and open platform solutions that allows developers to create applications which can be used in over 700 million vehicles worldwide. The software finds meaningful connections and correlations between data points. The proprietary cloud-based data intelligence system then opens possibilities for monetisation across the automotive value chain by consuming and normalising behavioural, diagnostic and contextual data.

■ Transaction Volume

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SMART BUILDING & CONSTRUCTION: SELECTED DEALS

UVC Partners and HW Capital provide €1.8 million seed funding to German construction software developer Capmo in December 2018

Capmo offers a SaaS solution for construction documentation, task and defect management. The company helps digitise construction processes, using artificial intelligence and modern web technology to improve the efficiency of construction projects.

ENGIE acquires German building automation specialist OTTO Luft- und Klimatechnik in December 2018

OTTO offers a highly advanced portfolio of services and products in ventilation & air conditioning, cooling technology and building automation, providing the Industry 4.0 standard to their customers. In 2018, the company generated around €120 million in revenue with approximately 700 employees. The takeover is part of ENGIE's strategy to strengthen its building services offering in the DACH region.

NavVis, a German 3D indoor digitalisation provider, receives $35.5 million in Series C funding round led by Digital+ Partners in December 2018

NavVis has developed computer vision-based indoor positioning technology that is capable of producing a digital twin of physical facilities. The product is used by firms from different industrial backgrounds, including automotive, construction, insurance and real estate. To date more than 1,500 buildings have been digitised by NavVis. The Series C round included investors BayBG, Digital+ Partners, Kozo Keikaku Engineering, MIG and Target Partners.

twingz development, an Austrian smart home SaaS provider, receives €1 million in early funding through business angel club Angelgate in July 2018

Twingz offers a smart home energy management platform which uses machine learning and AI-based analysis to predict usage and behaviour. The investor group includes Cornelius Boersch and SWC Ventures.

Transaction Volume chart (quarterly): Q1 2016: 15, Q2 2016: 14, Q3 2016: 18, Q4 2016: 17, Q1 2017: 19, Q2 2017: 15, Q3 2017: 21, Q4 2017: 25, Q1 2018: 30, Q2 2018: 21, Q3 2018: 27, Q4 2018: 26

■ Transaction Volume

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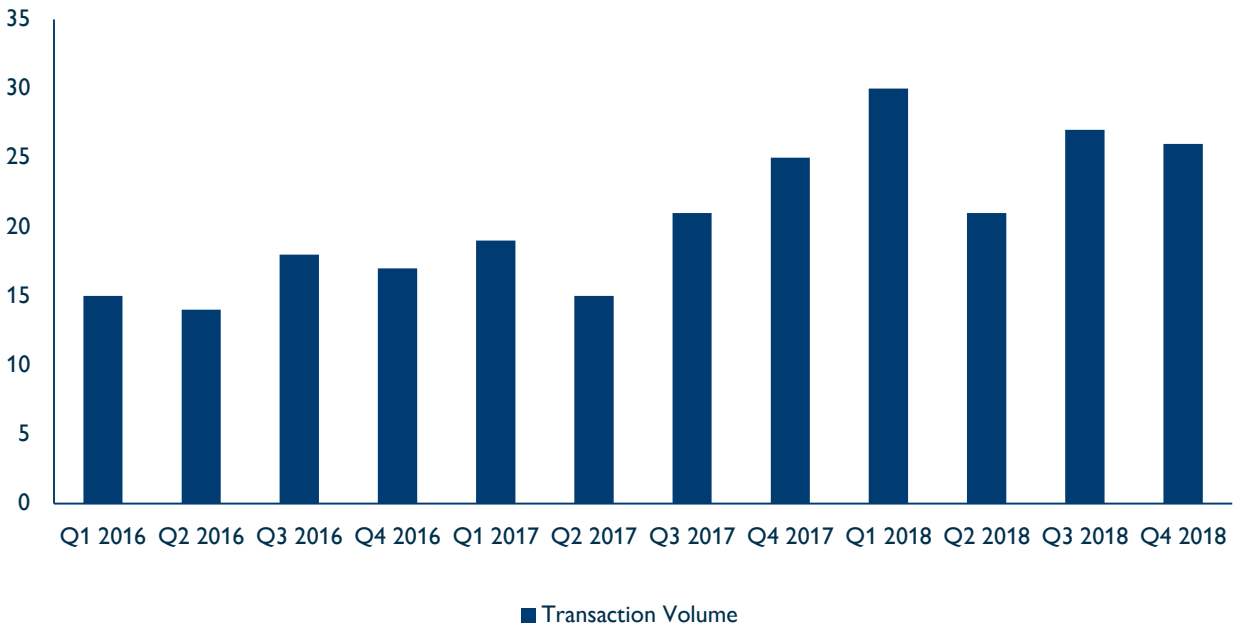
CLEANTECH: SELECTED DEALS

LACROIX Group acquires German automation technology specialist SAE IT-systems in February 2019

SAE IT-systems develops and manufactures telecontrol and substation automation technology for use in electricity, gas, heating, water, industry and infrastructure applications. In 2018, the company generated €15 million in revenue with 75 employees. This acquisition serves as part of LACROIX Group's plan to establish itself as world leader in remote monitoring and connected equipment in segments water & energy, and to strengthen its position in the smart environment segment.

Pepperl+Fuchs acquires US industrial automation provider Comtrol in February 2019

Comtrol Industrial develops and produces ethernet communication and IO-link gateway products. The acquisition is intended to strengthen Pepperl+Fuchs' own offering of sensor solutions and interface technologies that includes actuator sensor interface, IO-link masters and industrial connectivity.

EnviroChemie acquires Swedish water treatment specialist Processing in January 2019

Processing manufactures advanced water purification technologies mainly for public swimming pools and industrial customers. This is an add-on acquisition to the Investment Manager SKion's German portfolio asset EnviroChemie. With support from EnviroChemie, Processing is poised to expand its presence in the industrials segment.

GreenPocket, a German smart metering provider, receives €3.1 million in growth funding round led by DEW21 in August 2018

GreenPocket uses innovative technologies such as artificial intelligence, machine learning and data science to deliver software for consumption visualisation and energy management. The company has already realised 125 smart energy projects for more than 75 customers in 12 countries worldwide.

■ Transaction Volume

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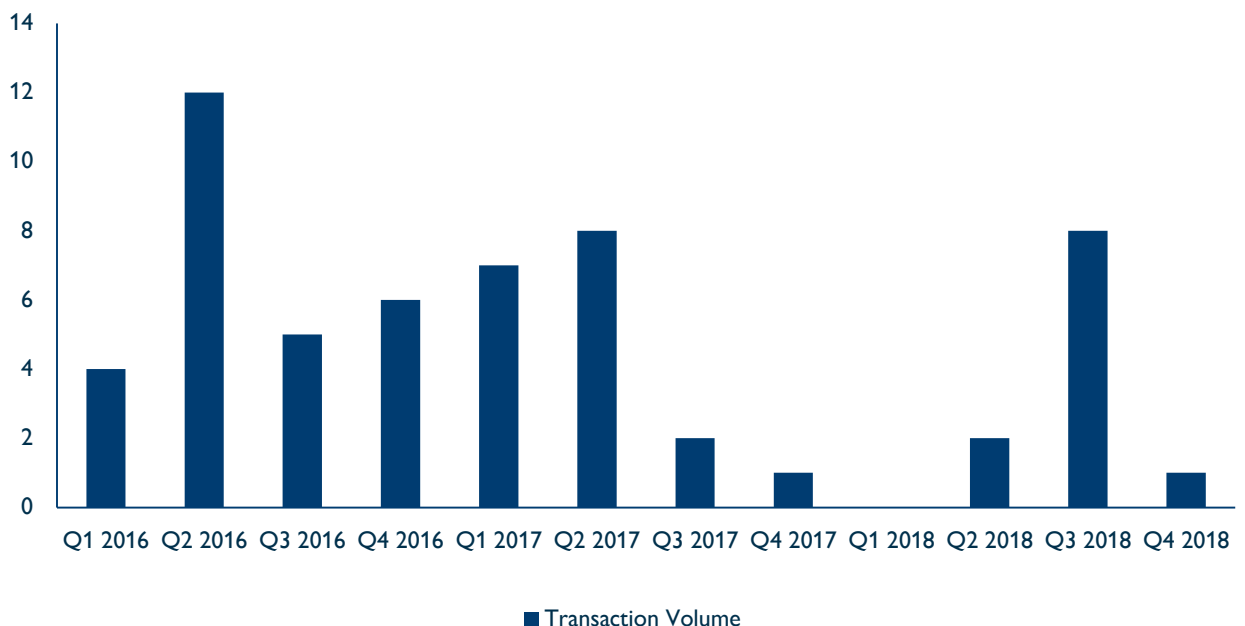
MEDICAL TECHNOLOGY: SELECTED DEALS

Scailyte, a Swiss software developer, receives €2.4 million in seed funding from a group of investors in December 2018

Scailyte develops AI-based software for analysis of complex single-cell data to enhance biomedical research, pharmaceutical discovery and precision diagnostics. The investors include Hemex, Swisscom Ventures and Zürcher Kantonalbank.

**EMH Partners acquires minority shareholding in the German software-based medical technology provider Brainlab in September 2018**

Brainlab develops medical software and hardware for precise, minimally invasive surgical procedures. Its core competencies are information-guided surgery, radiosurgery, precision radiotherapy and digital networking for the exchange of information and knowledge between doctors in the operating room (OR). Brainlab products are used in 5,000 hospitals worldwide. In 2017 the company generated €275 million in revenue. EMH Partners is one of the largest growth capital providers in Europe.

GWA Hygiene, a German advanced hygiene monitoring provider, receives €2.5 million in early funding from a group of investors in August 2018

GWA Hygiene developed an internet of things (IoT) system for easy integration into the infrastructure of health facilities to monitor, gather and analyse hygiene data with the aim to reduce overall number of hospital infections. Early stage funding was provided by Business Angels, MIG Fonds and The High-Tech Gründerfonds (HTGF).

Norgine Ventures invests €10 million in German data analytics platform provider caresyntax in September 2017

caresyntax develops a data-driven integration and analysis enabled medical IoT platform. The product offering enables seamless interfacing of various systems and devices in the OR, automates information flow and management, and provides analytical tools to increase workflow efficiency and reduce both surgical outcome and cost variability. Norgine Ventures is backed by Norgine, a fully integrated European healthcare company.

Transaction Volume

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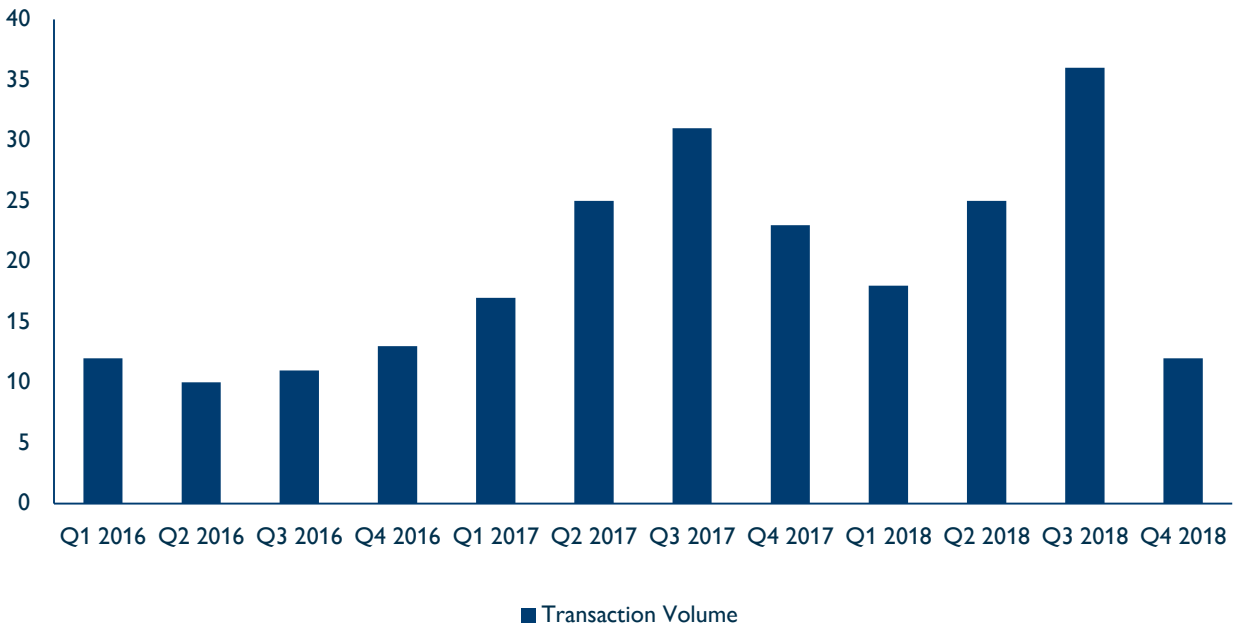
ROBOTICS & MACHINERY: SELECTED DEALS

Synapticon, a German robotics specialist, receives a high single-digit million investment in a Series B funding from a group of investors in January 2019

Synapticon develops and produces specialised high-performance components for robotics. The investors group includes 7-Industries. The company serves customers from the fields of aerospace & defence, automotive, consumer products, engineering, information and communications technology, pharma and retail & fashion.

Graphcore, a British artificial intelligence chipmaker, receives $200 million in Series D round led by Robert Bosch Venture Capital in December 2018

Graphcore develops and manufactures processors and software for artificial and machine intelligence. The company's IPU is the first processor designed specifically for machine intelligence training and inference and delivers an increase in speed of 10x to 100x compared to today's hardware. The company was valued at $1.7 billion in the transaction. Since its inception in 2016, Graphcore has raised $310 million in four financing rounds.

Rockwell Automation establishes strategic partnership and invests $1 billion in the US industrial internet of things (IoT) provider PTC in June 2018

The partnership focuses primarily on collaboration in the segment smart factory technologies, where the two companies aim to align their respective smart factory technologies and combine PTC's ThingWorx® IoT, Kepware® industrial connectivity, and Vuforia® augmented reality (AR) platforms with Rockwell Automation's FactoryTalk® MES, FactoryTalk Analytics, and industrial automation platforms. With this transaction Rockwell Automation gained approx. 8.4% ownership in PTC.

Brockhaus Private Equity acquires majority stake in the German data management software specialist Auvesy in September 2017

Auvesy provides an industrial IoT platform for industrial automation, designed to work with all data and automation systems. The company serves various industries, including automotive, chemical, energy generation, food production and industrial equipment. The transaction was part of a management buy-out.

■ Transaction Volume

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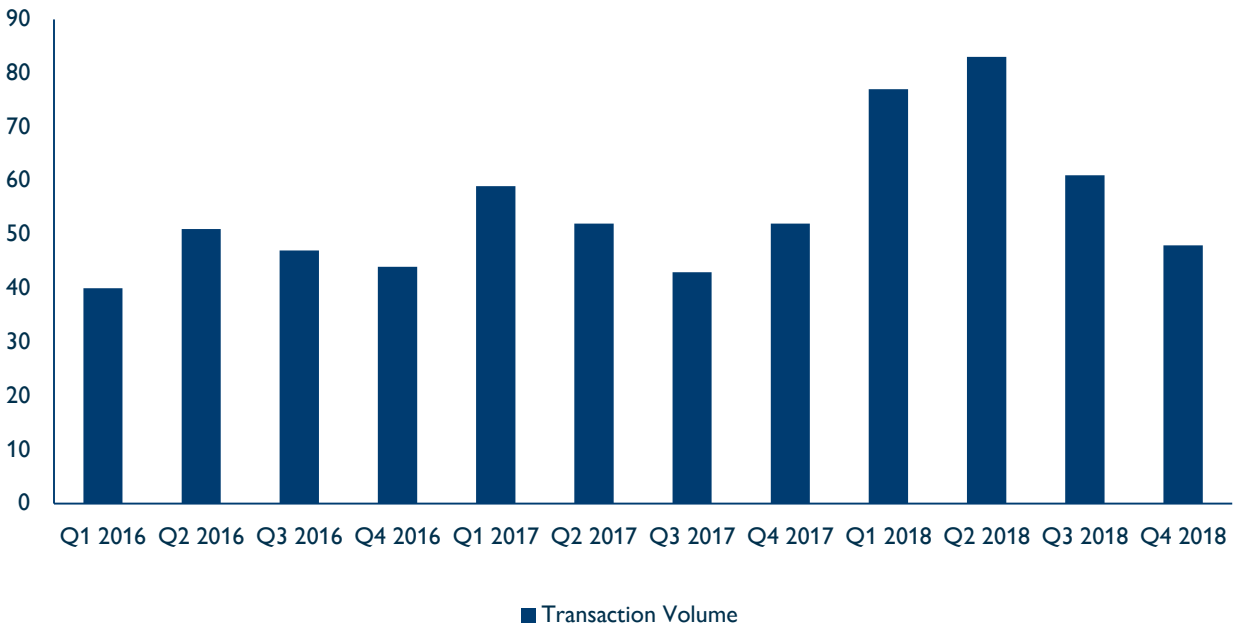
CONCLUSION & CONTACTS

Industry 4.0 reaches new heights with the ever-increasing integration of production processes across industries. A mere buzzword a few years ago, Industry 4.0 has become today's reality and is one of the hottest M&A sectors. Private equity investors, early-stage venture capital and trade acquirers all closely follow and engage in opportunities offering an Industry 4.0 angle. Liquidity is still at a high level, meaning that buyers are not lacking funds to support new start-ups or established Industry 4.0 players. Meanwhile, the DACH region continues to offer innovative cutting-edge technology and has witnessed a large number of M&A deals in the segment.

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We especially note interest in AI technologies, with context information (i.e. making sense of specific data within a broader framework), digital threads (linking data through the life-cycle of a product and its communication with other cyber-physical systems) and digital twin solutions (digital replication of a physical body, e.g. a machine) gaining prominence.

The recent strategic partnership between Rockwell Automation and PTC, accompanied by a $1 billion equity investment from the former, illustrates the importance of Industry 4.0 software competences – in this case IoT & augmented reality – for an industrial automation specialist. It is a perfect case of complementing products and commercial synergies: out of its 330-strong sales team, PTC uses only around 25 to address factory environments, whereas Rockwell Automation has over 1,000 sales professionals focusing in the area, increasing PTC's reach substantially.

Going forward, we expect that more such synergy-driven partnerships – and especially M&A projects – will come to life as traditional companies require high-tech data management solutions to remain competitive.

About Hampleton Partners

Hampleton Partners is at the forefront of international Mergers and Acquisitions advisory for companies with technology at their core.

Hampleton's experienced deal makers have built, bought and sold over 100 fast-growing tech businesses and provide hands-on expertise and unrivalled international advice to tech entrepreneurs and the companies who are looking to accelerate growth and maximise value.

With offices in London, Frankfurt and San Francisco, Hampleton offers a global perspective with sector expertise in: Automotive Tech, IoT, AI, FinTech, High-Tech Industrials, Cybersecurity, VR/AR, HealthTech, Digital Marketing, Enterprise Software, IT Services, SaaS & Cloud and E-commerce.

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