



strategy
corporate finance
restructuring

Unveiling the future:
delving into the digital
frontier – M&A insights
on Semiconductors,
Robotics and AI

Digital & Technology Insights.

2024

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Digital & Technology Insights

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Introduction JBR

Digital & Technology Insights

Dear reader,

This report includes our M&A insights into the Digital & Technology sector. More specifically, it consists of a deep-dive in the semiconductor and robotics & AI industries, including a concise and informative overview of market trends and M&A drivers, transactions and valuations.

If you have any questions regarding:

- collaborations, mergers, or acquisitions affecting or potentially affecting your organization;
- expansion or contraction of your portfolio of activities in the digital & technology sector;
- relevant trends and developments in your segment and what that means for your company's strategy;
- the advisory services of JBR in the digital & technology sector and what JBR can offer you.

Please contact:



Rocher Hulst

Principal
Corporate Finance

r.hulst@jbr.nl

+31 6 25 64 59 07



Valentijn Destoop

Associate

v.destoop@jbr.be

+32 496 12 55 42

The semiconductor industry is positioned for further expansion and plays a significant role in shaping various industries and economies

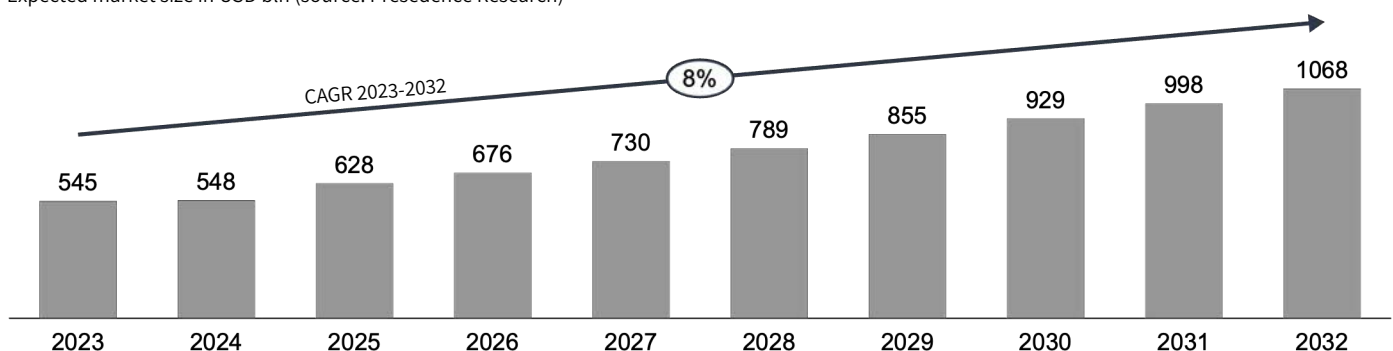
Market trends in the semiconductor industry:

- The surge in semiconductor demand is primarily fueled by the **expanding global population as underlying driver**. In 2024, 8 billion individuals are linked to 40 billion devices – an average of 5 devices per person. By 2030, the world population is projected to reach 8.5 billion, accompanied by 500 billion devices—an average of 59 devices per person*
- The **automotive sector** and **artificial intelligence (AI)** are important revenue growth drivers of the semiconductor industry
 - The automotive sector is experiencing rapid growth driven by electrification, autonomous driving and connectivity, necessitating advanced semiconductor solutions for integrated automotive systems and advanced driver-assistance systems (ADAS)
 - AI is an important driver because of the increasing adoption of AI across industries, demand for optimized AI processing tasks and increasing complexity of AI algorithms
- **Emerging applications** including quantum sensing, biotechnologies, space exploration, advanced package solutions and the rise of neuromorphic computing drive the demand for semiconductors. These emerging applications are utilized in healthcare, consumer electronics, automotive and telecommunications
- However, the industry is also facing various challenges that threaten its growth prospect
 - **Environmental** and **sustainability** issues have also made their entrance into the semiconductor industry and companies are increasingly paying attention to this to improve the industry. By implementing sustainable practices such as water recycling, energy efficiency measures and waste reduction, companies can improve resource efficiency and reduce operational costs
 - **Cybersecurity** and **trustworthiness** is becoming a substantial topic within the market. Semiconductors are integral in a wide range of electronic devices and ensuring the security of data processed and stored by these devices is critical to protecting sensitive information and preventing data leaks
 - **Supply chain resilience** is an uncertain factor, especially in years when components are scarce and inventory shortages arise, but on the other hand, it also drives the growing demand for semiconductors. New technologies will play a more important role in the supply chain, such as enhanced data analytics and blockchain
 - **Talented personnel** is becoming increasingly scarce. It will be challenging for companies to meet the growing demand without employees with a technical skillset

Market share by region 2022 (source: Presedence Research)



Expected market size in USD bln (source: Presedence Research)



*Source: Cisco & The United Nations

Recent transactions taken place in Semiconductor industry show the opportunities for global strategic expansion

Insights in some recent transactions in the semiconductor industry:

- The limited selection of recent transactions below in the semiconductor industry gives insight in the EV/EBITDA-multiple range of recent transactions and describes the opportunities for (international) strategic investors and their high market appetite for business expansion through the acquisition of other parties
- **Developments** in the semiconductor industry includes businesses operating as semiconductor material suppliers and are just as relevant as the manufacturers and implementation themselves and contribute to the advancement of the market
- The multiple range and valuations are dependent on company size, profitability and growth potential and the quality of innovations and the extend to which companies are liaised with key semiconductor companies. The industry is renowned for the many niche players and startups which offers M&A opportunities for the sector
- To highlight the variety of implications and industries:
 - DSP Group, Inc. provides wireless chipset solutions for the use of converged communication at home, unified communications and smart voice
 - Dialog Semiconductor Plc produces highly integrated, mixed signal integrated circuits for wireless, automotive and industrial applications
 - Maxim Integrated Products, Inc. produces a broad range of linear and mixed integrated circuits, primarily serving automotive, communications & data center, consumer and industrial markets

Overview of some recent transactions globally (source: S&P Capital IQ)

Year	Target	Buyer	Business description target	Geography	EV/EBITDA multiple
2023	HQ Pack Group	NPM Capital	A market leader in the development, production, cleaning and reuse of innovative and high-quality packaging solutions for the high-tech industry	Europe	NA
2022	CyberOptics Corporation	Nordson Corporation	A producer of high-precision 3D sensing, technology solutions used for inspection and metrology in the surface mount technology (SMT) and semiconductor markets	United States and Canada	17.9
2021	DSP Group, Inc.	Synaptics Incorporated	A fabless semiconductor company, providing wireless chipset solutions for three segments: converged communication at home, unified communications products and smart voice	United States and Canada	127.9
2021	CMC Materials, Inc.	Entegris, Inc.	A provider of consumable materials to semiconductor manufacturers	United States and Canada	22.0
2021	Dialog Semiconductor Plc	Renesas Electronics Corporation	A producer of highly integrated, mixed signal integrated circuits for wireless, automotive and industrial applications	Europe	21.2
2020	Inphi Corporation	Marvell Technology Group Ltd.	A fabless provider of high-speed analog and mixed signal semiconductor solutions for the communications and cloud markets	United States and Canada	6.0
2020	Maxim Integrated Products, Inc.	Analog Devices, Inc.	A producer of a broad range of linear and mixed-signal integrated circuits, primarily serving the automotive, communications & data center, consumer and industrial markets	United States and Canada	26.1
2020	Tianjin Zhonghuan Electronic Information Group Co., Ltd.	TCL Technology Group Corporation	A manufacturer of semiconductor materials, chip components and LED lights	Asia-Pacific	13.3

Unlocking productivity and efficiency opportunities by utilizing new robotics and AI

Market trends in the robotics and AI industry:

- The demand for robotics and AI is driven by the continuous need for cost reduction and efficiency improvements, contributing factors are increasing labor shortages, production process monitoring, the expansion of available data and increased investments
- The development of AI enhances **human-to-robot interactions**, which optimizes the utilization of robotics. Additionally, AI enables collaborative robotics (co-bots) to collaborate with humans in shared workspaces
- The most significant emergence of robotics and AI is potentially in the **medical field and in domestic services**. Within healthcare, robots can play a pivotal role in surgical procedures and address the increasing healthcare needs by an aging population in providing essential support. In domestic services, robots are increasingly deployed to support or take over jobs in tasks such as cleaning services
- Additional **significant applications** of robotics and AI include:
 - Utilization in production facilities to enhance both quality and productivity by supporting humans to become more efficient in operational tasks
 - More advanced automated solutions – key element is connectivity and data. This allows for cutting-edge data and progressive analysis and insights. The advantages can be realized because the more advanced automated solutions include improved predictive capabilities, interoperability and cost savings
 - Addressing efficiency improvement and labor shortages by automated documentation, customer service, detection of e.g. diseases, fraud and threats and predictive maintenance
- **Challenges** within the robotics and AI market include component shortages, as well as issues pertaining to supply chain resilience and sustainability issues as for instance energy consumption and e-waste
- Another risk that needs to be considered on robotics and AI are ethical issues. A system trained on biased or incomplete data can perpetuate societal inequalities and exacerbate environmental injustices. The lack of transparency and accountability can hinder the assessment and mitigation of impacts and understanding how decision-making is executed

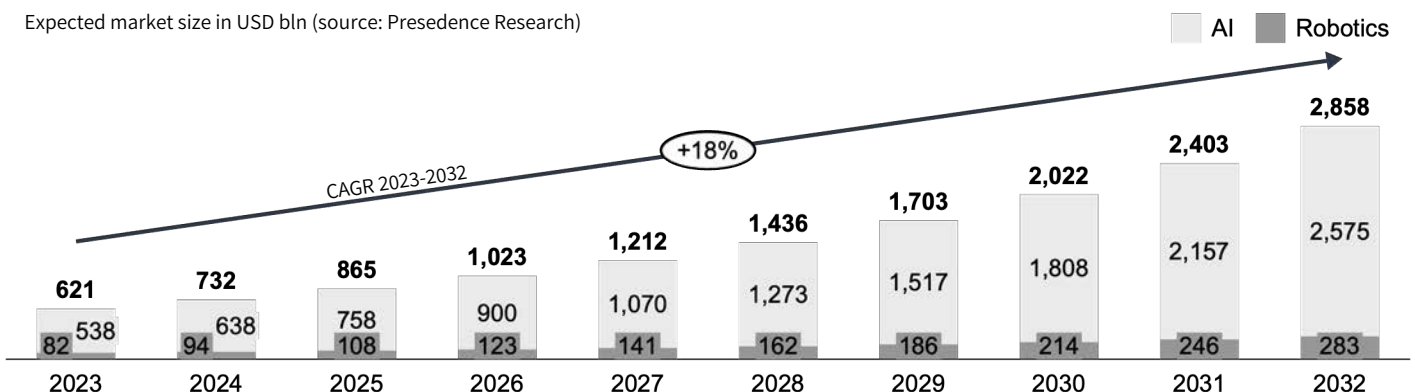
Market share by region Robotics 2022 (source: Presedence Research)



Market share by region AI 2022 (source: Presedence Research)



Expected market size in USD bln (source: Presedence Research)



The diverse influence of robotics and AI across industries, revealed through recent transactions

Insights in some recent transactions in the robotics and AI industry:

- The limited selection of recent transactions below, show that robotics and AI are being deployed across a wide range of industries
- The recent transactions in the field of robotics and AI illustrates the growing interest and investments in these technologies, which are expected to play an increasingly prominent role in various aspects of people’s lives and industries
- To highlight the variety of implications and industries:
 - Alitech is active in application software, providing an AI software solution for Mexican lawyers that processes documents and answers questions within seconds
 - Gyant.com, Inc. develops and operates an AI-based chatbot application that connects physicians and patients
 - Vake AS engages in applying Machine Learning (ML) and AI to satellite images for detecting and analyzing the behavior of vessels
 - Sevensense Robotics AG develops and delivers software and hardware that enables robots to autonomously navigate in dynamic spaces with humans, in-and outdoors
- These recent transactions demonstrate that activity is occurring on a global scale – however, Asia is expected to hold major market share due to domination in technological innovation, manufacturing, government support, rapid urbanization and the large consumer market


























Overview of some recent transactions globally* (source: S&P Capital IQ)

Year	Target	Buyer	Business description target	Geography	Industry
2024	Ag Analytics A/S	Monterro Germany GmbH	A producer of an AI-driven platform that provides the automotive the automotive industry with a plug-and-play solution to automate customer dialogues based on personal information	Europe	Interactive Home Entertainment
2024	Alitech	LEGALARIO	A developer of AI software solution for Mexican lawyers that processes documents and answers questions within seconds	Latin America and Caribbean	Application Software
2024	AUTO Mobility Solutions Co. Ltd.	Kiwi Campus Inc.	Engaging in the research and development that designs AI self-driving technologies for indoor use	Asia-Pacific	Industrial Machinery, Supplies and Components
2024	Gyant.com, Inc.	Florence Labs, Inc.	A developer and operator of an AI-based chatbot application that connects physicians and patients	United States and Canada	Health Care Technology
2024	RoboCorp Technologies, Inc.	Sema4.ai	A producer of robotic process automation tools to build software robots and automate manual tasks with open-source process automation tools	United States and Canada	Systems Software
2024	Vake AS	Kongsberg Satellite Services	Applying machine learning and artificial intelligence (ML/AI) to satellite images to detect and analyse the behaviour of vessels	Europe	Internet Services and Infrastructure
2024	Boss Engineering Holdings Pty Ltd	Alceon Private Equity	A manufacturer of robotics-focused planting and agricultural equipment	Asia-Pacific	Agricultural and Farm Machinery
2024	Sevensense Robotics AG	ABB Technology Ventures	A producer of integrated software and hardware that enables robots to autonomously navigate in dynamic spaces shared with humans, in- and outdoors	Europe	Electronic Equipment and Instruments

*EV/EBITDA-multiples for the transactions are unavailable and thus not displayed

JBR has over 30 years of experience in the Digital & Technology sector

Below are some recent references from the digital & technology sector:

 <p>advises</p>  <p>regarding the acquisition of</p> 	 <p>advises</p>  <p>on acquiring growth capital</p>	 <p>advises</p>  <p>on acquiring growth capital</p>
 <p>advises</p>  <p>on the sale of Infofolio to</p> 	 <p>advises</p>  <p>on the acquisition of</p> 	 <p>advises</p>  <p>on acquiring growth capital from</p> 
 <p>advises</p>  <p>on the sale of HQ Pack Group to</p> 	 <p>advises</p>  <p>on the sale of a significant stake to</p> 	 <p>advises</p>  <p>introducing shares on</p> 

JBR’s expertise in the Digital and Technology sector – a case description



NPM Capital takes majority stake in HQ Group. JBR assisted HQ Group shareholders in the transaction

Deal description

	Business valuation and financial modelling, drafting marketing documentation		M&A, Corporate Finance
	Identify and approach potential investors, negotiate and advise on structuring the deal		Deal size Undisclosed
	The Netherlands		Buyer Private Equity

HQ Group is the trusted partner of the global semiconductor industry and a specialist in high-quality packaging solutions. HQ Group is based in Eindhoven, operates worldwide and has production sites, with state-of-the-art clean room facilities in Europe, America and Asia. With renowned Dutch and foreign clients such as ASML, ASMI, VDL and Zeiss, HQ Group is an important supplier to global players in the semiconductor industry.

NPM Capital is an investment company with a flexible investment horizon primarily focused on the long term. NPM helps participations advance to the next stage of development in scale and professionalism. They support these trajectories by delving into themes important to them such as "Everything is Digital" and "Sustainable Future."

JBR's expertise in the Digital and Technology sector – a case description



Consortium of seven investors provides capital to accelerate further growth of RealFaceValue.
JBR accompanied RealFaceValue and its founder

Deal description



Prepare investor case, set up financial model



Preparing the term sheet and final transaction documentation



Identify and approach potential investors, negotiate and advise on structuring the deal



Deal size
€ 1.5 mln



The Netherlands



Investors
Seven investors through equity stake

RealFaceValue (RFV) offers an innovative cloud-based software solution that can generate a scientifically validated scan of our face. This scan reveals an intuitive interpretation regardless of gender and/or ethnicity. RFV offers a software tool that sets a new standard: Perceptive Intelligence, the ability to perceive, understand and optimize first impressions. The tool is initially being launched in the medical aesthetics market, but there is the possibility of further expansion into the cosmetics market and beyond.

RealFaceValue has successfully secured €1.5 million in growth capital from a consortium of **seven investors**. The funding will support the company's introduction to the Dutch market and further optimization of the software tool in anticipation of its global rollout. The seven investors provided growth capital through an equity stake in RealFaceValue. The funds will be used for market launch, optimization of the software tool, international expansion and professionalization of the company.

JBR's expertise in the Digital and Technology sector – a case description



Cronos Group has sold its position in Geo Square to Bencis Capital. JBR assisted Bencis Capital with buy-side M&A services

Deal description



Identifying growth opportunities



M&A, Corporate Finance



Negotiate and advise on structuring the deal



Deal size
Undisclosed



Belgium



Buyer
Private Equity



Bencis Capital is an independent investor that has supported entrepreneurs and management teams in realizing their growth ambitions, both organically and through acquisitions, for more than 20 years.

Geo Square is a specialist in geolocation services, providing tracking solutions and turning spatial information into real business value. Geo Square operates primarily in sectors such as government, utilities, large industry, construction, transportation and service companies, where it offers a full range of services, products and solutions.

JBR is an independent and multidisciplinary consulting firm with an international presence and established capabilities that offers customized and practice-orientated advices

- 1984** JBR has developed since 1984 as an independent, internationally operating consulting firm with over 40 years experience
- 30+** Corporate finance, strategy and research consultants translating financials into strategy and placing corporate finance issues in a strategic context
- 10** Associated partners, adding far-reaching industry and professional knowledge complementing to existing expertise and educating the firm
- 3** Subsidiaries: JBR Interim Executives, JBR Mandaat and JBR Governance making the right match for Interim CEOs, Interim Managers and Supervisory Boards
- 30+** Partner firms at the network of REACH, a global organization of M&A experts with an international presence and local expertise

Independent firm offering customized service

 <p>Realistic and practice-oriented solutions</p>	 <p>Dedicated advice by multidisciplinary teams</p>
 <p>Hands on industry experts</p>	 <p>Creative, professional and ambitious</p>
 <p>International network and broad experience</p>	 <p>Solid track-record</p>
 <p>Ability to make a sustainable contribution</p>	 <p>Highly skilled specialists</p>

International presence and established capabilities

The three disciplines **Strategy, Corporate Finance and Restructuring** and **interim & governance, enable JBR to approach cases integrally**

Corporate Finance



Acquisition process management, divestment process management, business valuation services, structure finance (debt / equity) and financial modeling

Strategy



Optimizing shareholder value, strategic portfolio analysis, identifying growth opportunities, business case development, commercial due diligence and market research

Restructuring



Quick scan – problem analysis and advice, risk assessment, financial re-modelling, restructuring case development, operational excellence and debt advisory

JBR Interim Executives



An interim director from JBR Interim Executives helps to safeguard the continuity of the family business, addressing succession issues, mergers and acquisitions, refinancing, or other change processes

JBR Mandaat



JBR Mandaat provides customized solutions in the placement of the right interim professionals in the right positions. The strength lies in the active network of interim CFOs or other functional managers

JBR Governance



JBR Governance supports in Supervisory Search and Boardroom Evaluation and helps in strengthening and professionalizing the Supervisory Board

JBR focuses on the Maritime & Offshore, Energy & Materials Transition, Healthcare, Food & Agri, Industrial Markets and Digital & Technology

Maritime & Offshore



- Terminal operators, towage, port service providers, shipping, port authorities
- Critical link in European trading function, economies of scale, internationalization

Energy & Materials Transition



- Energy production and sales, network operators, governments, civil engineering companies, installation companies
- Strategic portfolio cases, sustainable energy, heat, energy reduction, smart grids

Healthcare



- Cure and care sector, hospitals, home care organizations, ambulance services, mental health, suppliers
- Ageing population, partnerships, demand for increasing efficiency, cost reduction

Food & Agri



- Primary production (seed / feed / technology), suppliers' primary products, food industry, distribution, retail
- Population growth and increasing scarcity underline the importance of technological innovations

Industrial Markets



- Oil and gas industry, decommissioning, offshore wind energy and service providers
- Internationalization, cost reduction, sustainability, shale gas, stringent safety requirements, fluctuating oil prices

Digital & Technology



- Cloud computing, cybersecurity, big data and analytics, artificial intelligence, machine learning, software as a service and ecommerce
- Revolutionary developments relevant to all segments

JBR is part of REACH, a global network of independent consulting firms, that consists of 30+ offices which gives the network an international presence backed by local expertise



	<p>One of the world's leading partnerships of independent M&A firms</p>		<p>Steady transaction performance with a combined value in excess of € 42bn over the last five year</p>
	<p>World-class independent, uncompressed and differentiated advice with a focus on long-lasting, deep client relationships</p>		<p>Integrated advisory including M&A, Corporate Restructuring, Financing & IPOs, Strategic Advisory and Succession Planning</p>
	<p>A global network of independent investment banking firms transacting across all five business continents</p>		

REACH

Cross—Border
Mergers & Acquisitions

JBR Digital & Technology team



Rocher Hulst
Principal
Corporate Finance
r.hulst@jbr.nl
+31 (0)6 25 64 59 07



Valentijn Destoop
Associate
v.destoop@jbr.be
+32 496 12 55 42



Frank Hermans
Associate
f.hermans@jbr.be
+32 495 66 00 97



Gijs Hulscher
Associate
g.hulscher@jbr.nl
+31 (0)6 18 13 80 97



Thomas van Amerongen
Senior Consultant
Corporate Finance
t.vanamerongen@jbr.nl
+31 (0)6 31 94 77 30



Suut Tang
Consultant
Corporate Finance
s.tang@jbr.nl
+31 (0)6 15 51 82 86

Contact

Netherlands Office

Het Rond 6A
3701 HS Zeist, the Netherlands
+31 (0) 30 699 90 00
welkom@jbr.nl

Belgium Office

Burchtweg 7
9890 Gavere, Belgium
+32 47 22 80 188
welkom@jbr.be

