



# Automation Market

HW&Co. Whitepaper

Spring 2017

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# Industrial Technology

## *Automation Market*

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Spring 2017

Our mission with this paper is to provide an overview of the continuing market developments that are increasing utilization of automation technology across applications and industries.

Automated systems and robotics enable companies to increase productivity at increasing rates of return on investment. As a result, automation technology continues to proliferate worldwide markets at a quickening pace, with adoption expanding across an increasing number of verticals. Economists at Oxford University forecast that nearly half of current jobs will be performed by automation systems within two decades, making this trend an important consideration for companies in evaluating the future of their operations and competitive activities.

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Harris Williams & Co. Automation Experience Spotlight



**DORNER MANUFACTURING CORP. WAS ACQUIRED BY EQT**

Dorner is a leading global designer and manufacturer of smart technology precision unit conveyor solutions for process automation applications. Founded in 1966, Dorner is a world leader in delivering innovative solutions that increase productivity and profitability by optimizing customers' processes across a wide array of industries, including food, medical, pharma, packaging, and manufacturing. Harris Williams & Co. served as financial advisor to Dorner, a portfolio company of Incline Equity Partners, on the sale to the EQT Mid Market US fund.

Read the full press release [here](#).



**GROHMANN ENGINEERING GMBH WAS ACQUIRED BY TESLA MOTORS, INC.**

Grohmann Engineering is a developer and manufacturer of highly customized, high yield, multi-process modular assembly solutions for future oriented end markets. Founded in 1983 and headquartered in Pruem, Germany, Grohmann Engineering develops and manufactures production lines for industrial automation worldwide. The company is a key contributor to breakthrough technologies, for example, those required for industrial production and assembly of lithium-ion batteries, and testing of microchips and wafers. In addition to the automotive, electronics and semiconductor industries, the company's machines and plants are also employed in biotechnology and medical applications. Harris Williams & Co. served as the exclusive financial advisor to Klaus Grohmann, founder and majority stakeholder of Grohmann Engineering, and Deutsche Beteiligungs AG (DBAG; XETRA:DBAN). Post transaction, Grohmann Engineering will become Tesla Grohmann Automation and serve as the initial base for Tesla Advanced Automation Germany headquarters.

Read the full press release [here](#).

**DORNER**  
a portfolio company of  
**INCLINE**  
EQUITY PARTNERS  
has been acquired by  
**EQT**

**GROHMANN ENGINEERING**  
has been acquired by  
**TESLA**

**JR AUTOMATION TECHNOLOGIES**  
a portfolio company of  
**HUIZENGA GROUP**  
has been acquired by  
Crestview

**MAXCESS**  
a portfolio company of  
**MERFIN CAPITAL** and  
has merged with  
**WEBEX, INC.**  
a portfolio company of  
**BERTRAM CAPITAL**

**Ranpak**  
a portfolio company of  
**ODYSSEY**  
has been acquired by  
**RHÔNE**

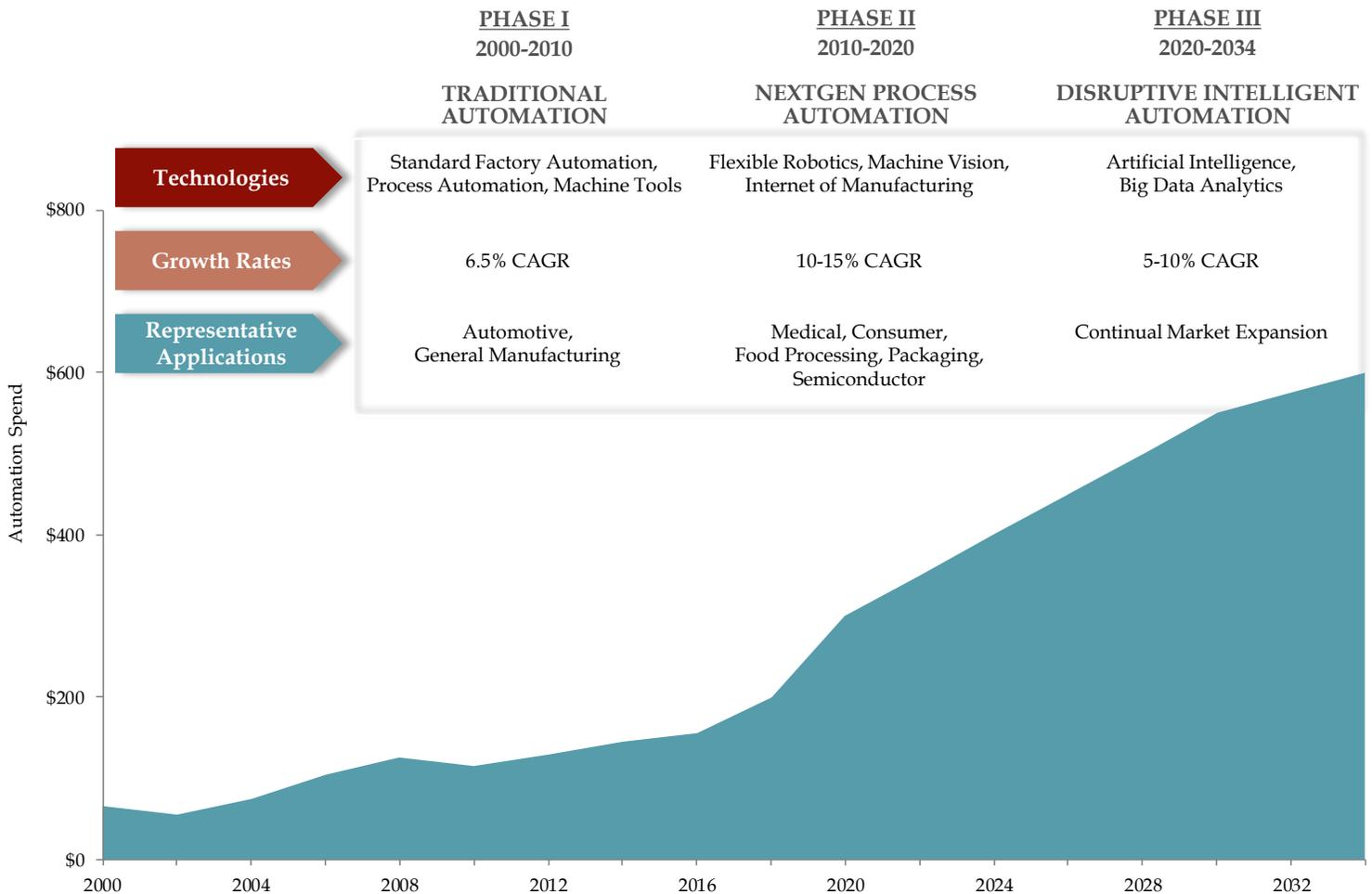
**LIQUI-BOX**  
DESIGN. CONNECT. DELIVER.  
a portfolio company of  
**THE STERLING GROUP**  
has been acquired by  
**OLYMPUS PARTNERS**

**STOLLE MACHINERY**  
a portfolio company of  
**GSO**  
CAPITAL PARTNERS  
has been acquired by  
**TOYO SEIKAN GROUP**

Automation Market Overview

Over the past decade, as companies have searched for ways to maintain the competitive position of their global business operations, the adoption and use of automation systems has grown at an increasing rate. Cited for its ability in advancing product quality and improving resource yield, while reducing waste, decreasing labor costs, and expanding production flexibility, the annual global spend on automation systems increased by more than 140%, from \$65 billion in 2000 to \$155 billion in 2016. Owing to continued technology advancements, such as machine vision, improved sensors, flexible robotic platforms, and innovative end-of-arm tool instruments, all which have and will continue to enable expanded automation adoption, annual global automation spend is expected to increase to over \$300 billion by 2020. This spend is expected to increase to over \$600 billion in future years as automation systems become more interconnected within process operations through data analytics and Internet of Things connectivity, as well as the anticipation of completely autonomous systems through artificial intelligence platforms.

**Exhibit 1**  
Continued Evolution of Automation  
(\$ in billions)



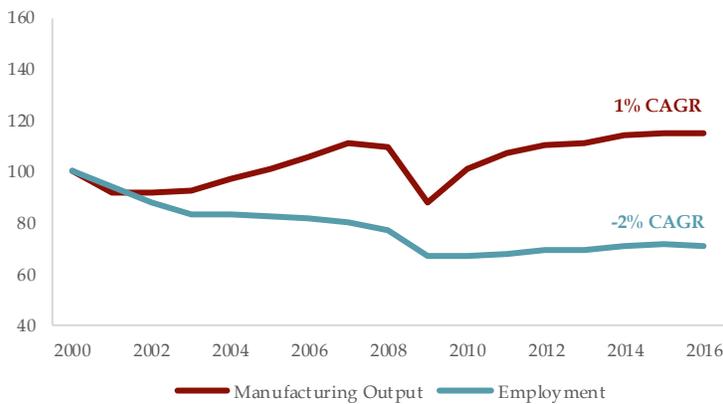
Source: International Federation of Robotics, Wall Street Research

**Commercial Benefits of Automation**

For most of the past decade, companies have attempted to obtain a competitive advantage in product production primarily through low-cost labor. This resulted in a significant amount of manufacturing activities moving to countries such as Mexico, China, and other low-cost Asian markets. Recently, rapidly rising wages in most of these markets have significantly reduced this labor cost arbitrage. As an example, according to labor analysts, labor wages in China have grown to the point where China’s unit labor costs are now only 4% lower than in the U.S. After factoring in costs to transport the product across the ocean, and the expense to manage people in far away foreign countries, this cost gap is all but eliminated.

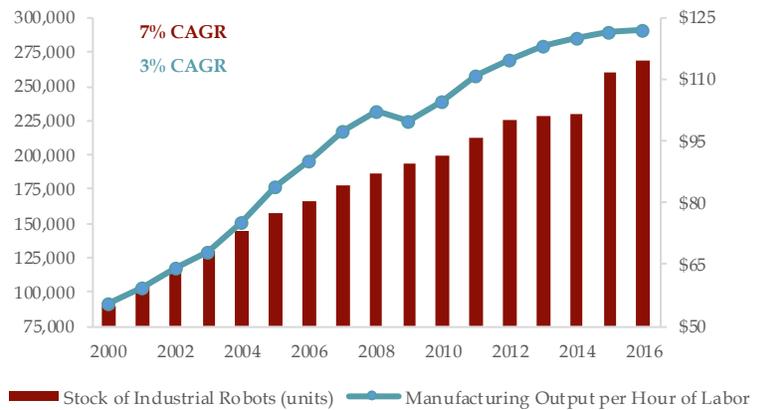
As a result, companies worldwide have transitioned their focus to gaining competitive advantages through productivity improvements. Automation has become a centerpiece in capturing these improvements as automation systems can complete tasks more efficiently, effectively, and consistently than human labor, thereby leading to higher output with the same amount, or less, workers. As evidence of these productivity gains / asset utilization, from 2000 to 2016, when the stock of industrial robots (automation) increased at a compounded annual growth rate (“CAGR”) of 7%, manufacturing output in North America grew at a 1% CAGR with the manufacturing employee base shrinking by a CAGR of over 2%. Further, manufacturing output per hour of manual labor increased at a 3% CAGR over the same timeframe. It is estimated that the potential productivity gains from adoption of automation on a global basis will be as much as 0.8% to 1.4% annually over the next 50 years. Translating this to a measure of commercial value, it is anticipated that automation will generate over \$2 trillion in process savings from labor efficiency, waste elimination and increased asset utilization.

**Exhibit 2**  
U.S. Manufacturing Output and Employment



Source: Bureau of Labor Statistics, Federal Reserve

**Exhibit 3**  
North America Productivity and Operational Stock of Robots



Source: Bureau of Labor Statistics, RIA, IFR

**Estimated Commercial Value from Automation over Next Decade**



**Greater Labor Efficiencies and Increased Productivity**

**\$675B+**



**Reduce Time to Market**

**\$810B+**



**Eliminating Waste**

**\$729B+**



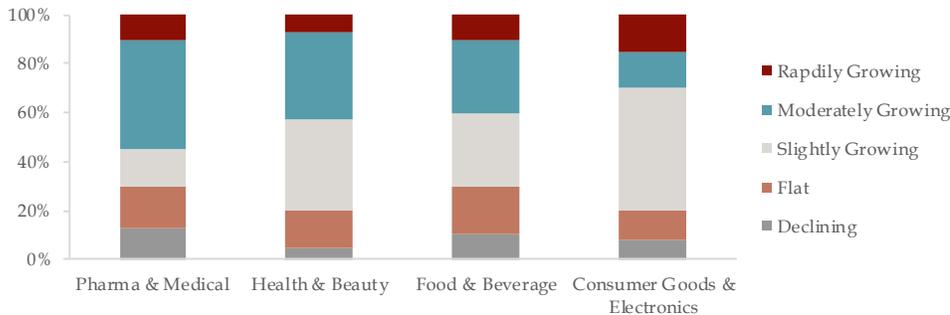
**Increased Asset Utilization**

**\$675B+**

Commercial Benefits of Automation (cont'd)

Furthermore, companies are increasingly utilizing product innovations or product platform refreshes, such as packaging formats, as a competitive tool. As examples, in a recent market survey over 75% of consumer, pharmaceutical, and food and beverage manufacturers were experiencing growth in packaging refresh rates and expected this trend to continue for an extended period of time.

**Exhibit 4**  
2015 Growth in Packaging Refresh Rates by End Market



~75% of producers are experiencing growth in packaging refresh rate

Source: Industry survey conducted by Parthenon - Ernst & Young

While companies are increasing the pace of product development, they are also having to ensure effective, recurrent day-to-day production operations to avoid costly downtime and production loss. Companies utilizing automation technologies, which are proven to provide a greater degree of flexibility in manufacturing processes, have demonstrated a measureable improvement in their new product time-to-market, or speed to market. It is currently estimated that over the next 10 years, automation has the potential to generate over \$800 billion in commercial value from reducing time-to-market cycles.

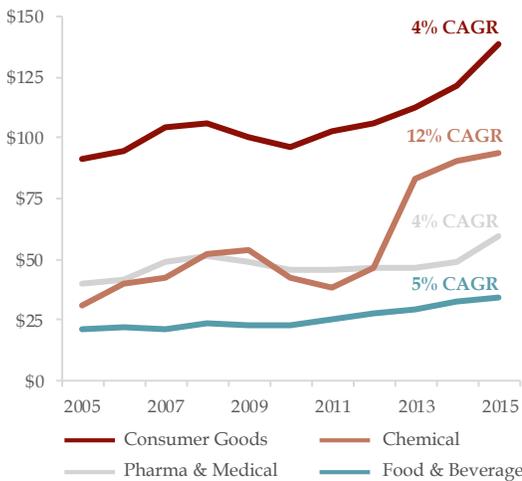
Growing Adoption of Automation

As to be expected, the roles that have been the most influenced by automation are those characterized by highly structured physical actions that are repetitive in nature. These types of actions are most prevalent in heavy manufacturing, warehousing, and transportation. However, with the continuous advancement of functional technology, automation has become applicable to a broader array of applications and end markets, many of them associated with highly complicated processes and discrete products. The food and beverage industry is one example, where automation has largely been utilized for end-of-line packaging and palletizing. With the increasing availability of innovative technology, such as highly effective machine vision and pick-and-place systems, automation has moved upstream to undertake operations involving actual processing of food products on production lines. The pharmaceutical industry is also in the early stages of adopting automation having been stimulated by the enhanced capabilities and flexibility of robot technology. These industries also benefit from automation technologies that improve a company's ability to comply with increasingly stringent health, quality and safety regulations. This is accomplished through functional technology that improves quality assurance and quality control procedures by way of 100% product inspection during the production processes, which is economically too costly and procedurally too difficult for humans to achieve.

Growing Adoption of Automation (cont'd)

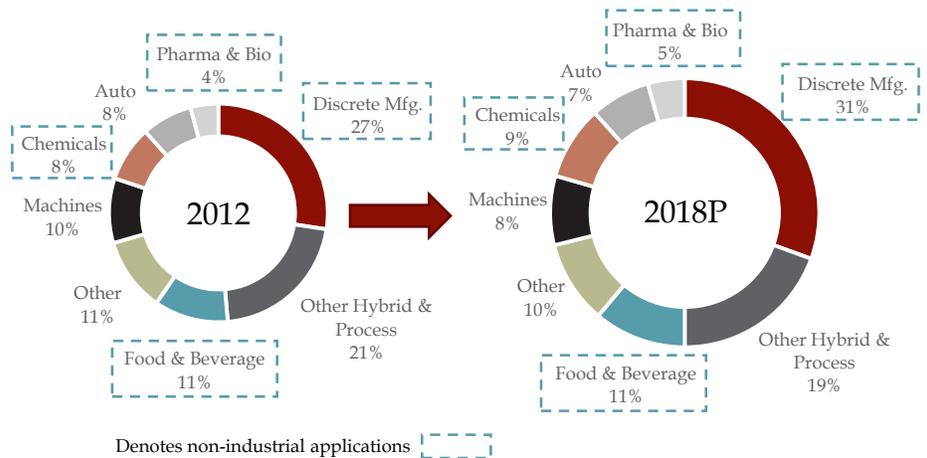
Manufacturing capital investment within non-traditional industrial markets, such as food and beverage, pharmaceutical and medical, consumer goods, and chemicals helps demonstrate the increased adoption of production machinery such as automation systems. Since 2005, capital investment in food and beverage, pharmaceutical and medical, consumer goods, and chemical industries has grown at a CAGR of 5%, 4%, 4% and 12%, respectively. As a result of this trend, non-traditional industrial applications are expected to account for 56% of the automation market annual spend by 2018P, an increase from 50% in 2012.

**Exhibit 5**  
U.S. Manufacturing Capital Investment  
(\$ in billions)



Source: Oxford Economics

**Exhibit 6**  
Automation by Market Application  
(\$ in billions)

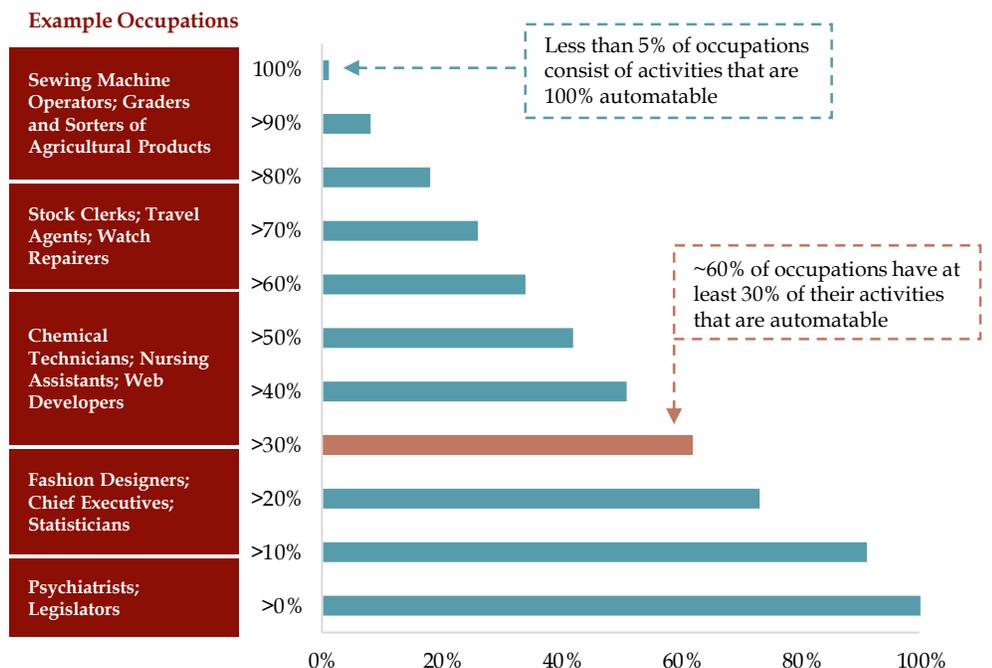


Source: J.P. Morgan Global Equity Research

The Potential of Automation

While automation has primarily been utilized to improve the efficiency of tasks requiring high degrees of physical labor, its full potential can extend to a wider array of functional tasks, including collecting and processing data. Industry research suggests that approximately 50% of tasks that individuals are employed to perform can be improved by automation technologies that are available today. Within this, it is estimated that less than 5% of occupations can be fully automated, while 60% of occupations have at least 30% of their activities that can be automated.

**Exhibit 7**  
Automation Potential Based on Demonstrated Technology of Occupation Titles in the U.S.  
(Cumulative Share of Roles %)



Source: Bureau of Labor Statistics; McKinsey Global Institute

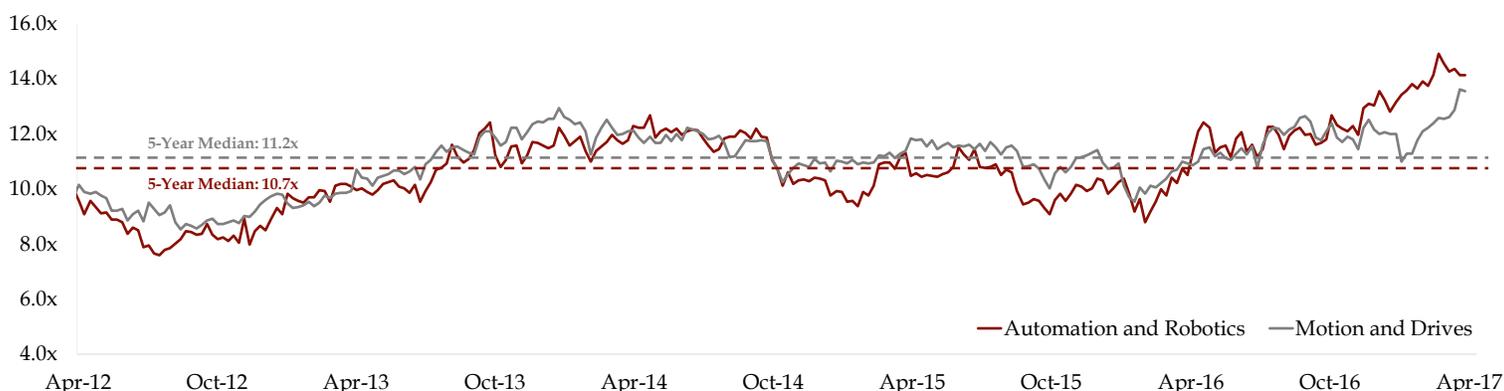
Public Market Outperformance

Public intelligent automation companies are trading at a median multiple of 13.5x LTM EBITDA with automation and robotics companies in particular trading at 13.9x LTM EBITDA. The market has performed exceptionally well, with automation and robotics as well as motion and drives indices trading well above their respective 5-year median EBITDA multiples of 10.7x and 11.2x, respectively.

Exhibit 8

Automation Public Comparables

(TEV / EBITDA Multiple)



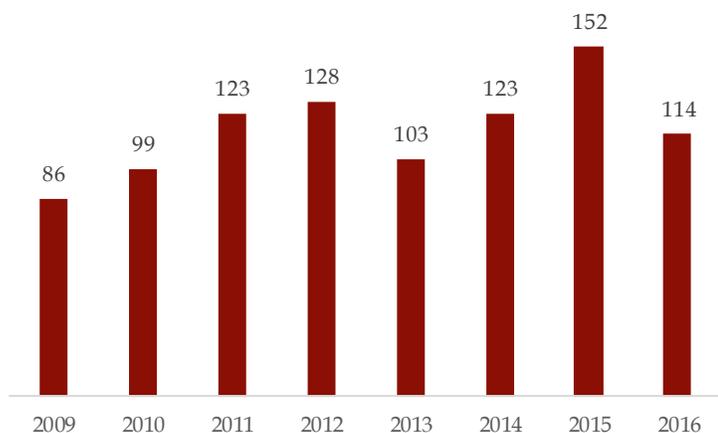
Intelligent Automation Public Comparables

	LTM Margins			Stock Performance				TEV / LTM EBITDA
	EBITDA	Gross	TEV	Current	1-Month	1-Year	% of	
				Price	Change	Change	LTM High	
<b>Automation and Robotics</b>								
ABB Ltd.	13.9%	29.5%	\$51,073	\$22.92	1.6%	16.2%	95.2%	10.9x
Fanuc Corporation	33.9%	44.2%	\$32,770	\$203.12	4.3%	23.2%	96.6%	20.1x
Rockwell Automation, Inc.	19.7%	47.1%	\$19,336	\$153.58	(0.6%)	35.9%	96.1%	16.7x
Metso Oyj	12.3%	27.5%	\$4,537	\$7.72	4.4%	28.4%	96.9%	13.0x
KUKA Aktiengesellschaft	8.2%	24.5%	\$4,145	\$107.45	1.7%	2.9%	87.3%	15.5x
Krones AG	9.5%	22.4%	\$3,135	\$113.85	3.3%	(2.9%)	93.3%	8.8x
Automation Tooling Systems Inc.	10.0%	20.9%	\$1,006	\$9.83	(1.1%)	20.3%	92.9%	13.5x
FARO Technologies, Inc.	8.6%	50.4%	\$401	\$33.00	(4.2%)	11.0%	82.2%	14.3x
<b>Median</b>	<b>11.1%</b>	<b>28.5%</b>			<b>1.7%</b>	<b>18.3%</b>	<b>94.3%</b>	<b>13.9x</b>
<b>Mean</b>	<b>14.5%</b>	<b>33.3%</b>			<b>1.2%</b>	<b>16.9%</b>	<b>92.6%</b>	<b>14.1x</b>
<b>Motion and Drives</b>								
Siemens AG	12.8%	29.9%	\$132,581	\$135.28	3.2%	32.4%	98.0%	11.7x
Danaher Corporation	24.4%	55.6%	\$71,604	\$86.06	(1.6%)	(7.9%)	83.7%	17.4x
ABB Ltd.	13.9%	29.5%	\$51,073	\$22.92	1.6%	16.2%	95.2%	10.9x
Schneider Electric SE	16.7%	36.9%	\$46,448	\$72.85	4.9%	19.3%	97.4%	10.2x
Nidec Corporation	17.0%	23.9%	\$26,571	\$90.30	(3.5%)	34.2%	91.7%	14.8x
Fortive Corp.	23.2%	48.9%	\$23,684	\$60.83	3.5%	NA	99.5%	16.4x
AMETEK Inc.	26.2%	36.5%	\$14,269	\$54.10	(0.3%)	8.2%	97.5%	14.2x
Yaskawa Electric Corporation	11.5%	29.7%	\$5,025	\$18.49	(4.2%)	51.2%	89.2%	12.3x
Rexnord Corporation	15.8%	32.4%	\$3,613	\$23.10	(1.0%)	13.2%	94.1%	12.0x
<b>Median</b>	<b>16.7%</b>	<b>32.4%</b>			<b>(0.3%)</b>	<b>17.8%</b>	<b>95.2%</b>	<b>12.3x</b>
<b>Mean</b>	<b>18.2%</b>	<b>36.4%</b>			<b>0.4%</b>	<b>21.9%</b>	<b>94.0%</b>	<b>13.5x</b>
<b>Overall Median</b>	<b>13.9%</b>	<b>29.9%</b>			<b>1.6%</b>	<b>17.8%</b>	<b>95.2%</b>	<b>13.5x</b>
<b>Overall Mean</b>	<b>16.3%</b>	<b>34.7%</b>			<b>0.7%</b>	<b>18.9%</b>	<b>93.3%</b>	<b>13.7x</b>

Active M&A Market

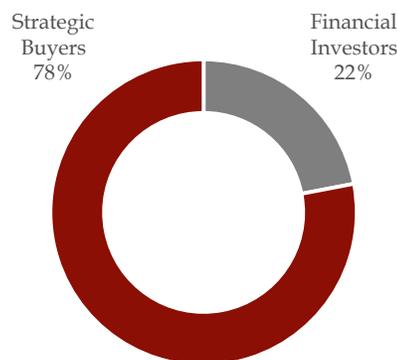
Acquisition activity has been very strong with buyers acquiring leading automation solution companies to expand their ability to “play” the industry megatrends. From 2009 to 2016, automation M&A activity grew at a 4.1% CAGR, globally. Strategic acquirers remain the most active buyer group representing ~80% of M&A activity during this period.

**Exhibit 9**  
Global Automation Transactions



Source: MergerMarket

**Exhibit 10**  
HW&Co. 2016 Intelligent Automation M&A Breakdown



**Exhibit 11**  
Select Recent Transactions

Date	Target	Description	Acquirer
Mar-17	Dorner Manufacturing	Designs and manufactures roller and belt conveyor solutions for manufacturing industries worldwide	EQT Mid Market US
Feb-17	Inoxpa S.A.	Provides process equipment and flow handling systems for the food, cosmetics and pharmaceutical industries	Interpump Group S.p.A.
Jan-17	Grohmann Engineering	Develops and manufactures highly customized, high yield, multi-process modular assembly solutions for future oriented end markets	Tesla
Jan-17	JOT Automation	Manufactures automation equipment, systems and solutions for the electronics industry	Global Equipment Services and Manufacturing Inc.
Jan-17	iAutomation	Provides machine control solutions and services	Saw Mill Capital
Jan-17	NHL-Automation ApS	Provides automation solutions for wastewater treatment and water treatment	Logimatic Holdings AS
Dec-16	KUKA AG	Develops and operates production systems and robotics for the auto industry, and develops packaging systems for consumer goods and pharmaceuticals	Midea Group
Dec-16	Midwest Industrial Rubber	Provides lightweight conveyor belts and related automation components	Incline Equity Partners
Nov-16	Dematic Corp.	Provides intelligent intralogistics and material handling solutions	Kion Group AG
Oct-16	Magnum Systems	Designs and manufactures pneumatic conveying, packaging, and automation systems	Blue Sage Capital
Oct-16	Braas Company	Distributes products for industrial automation and control, specializing in pneumatics, motion control, industrial networking, machine safety, and robotics	Motion Industries, Inc.
Aug-16	Intelligrated, Inc.	Designs, manufactures, integrates, and installs complete material handling automation solutions	Honeywell International
Jul-16	Machines Pages	Manufactures high speed robotics systems and machines for packaging of industrial, medical, technical and consumer products	BNP Paribas Private Equity; Carvest SAS; InnovaFonds SAS
Mar-16	MagneMotion, Inc.	Develops and manufactures linear synchronous motor (LSM) products and systems used in assembly automation, material handling, and transportation applications	Rockwell Automation, Inc.

Source: MergerMarket

## Sources

Federal Reserve Bank	J.P. Morgan Global Equity Research	Oxford Economics
FactSet	McKinsey Global Institute	Parthenon - Ernst & Young
International Federation of Robotics	MergerMarket	The Boston Consulting Group
IFR	Modern Machine Shop Magazine	U.S. Bureau of Labor Statistics

## Disclosures

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