

AlphaCentric Global Innovations Fund (GNXAX, GNXCX, GNXIX)

# PUTTING ROBOTS TO WORK

## Global Growth Opportunity: Investing in the Second Machine Age

### KEY TAKEAWAYS

- Global spending on robotics is expected to reach \$103.1 billion in 2018, an increase of 21% over 2017.
- In 2019, worldwide robotics spending is forecast to be \$103.4 billion. By 2022, IDC expects this spending will reach \$210.3 billion with a compound annual growth rate (CAGR) of 20.2%.<sup>1</sup>
- Robotics solutions are used in five main sectors, with 22 application communities and growing.
- Robotics and automation companies are set to benefit from newly enacted tariffs.
- Robotics and automation companies offer a thematic investment opportunity and the potential for long-term outperformance.

At AlphaCentric Funds, we believe growth in robotics for workplace automation has reached a tipping point towards wide-scale adoption. In fact, the proliferation of robotics from its roots in the automotive industry has grown exponentially both here in the United States and around the globe due to growth in other industrial and service industry applications. Currently there are 250,000 robots in use in the U.S., the third highest in the world behind Japan and China, according to the Robotic Industries Association.

Wider adaption of robotic applications outside of the automotive industry has translated into increased sales and brighter growth prospects for global robotic manufacturers and automation companies. Accordingly, we believe the increased utilization of robotics and automation technologies presents a thematic investment opportunity and the chance to participate in growth dynamics related to the adoption of robotics in industrial and service automation in “The Second Machine Age.”

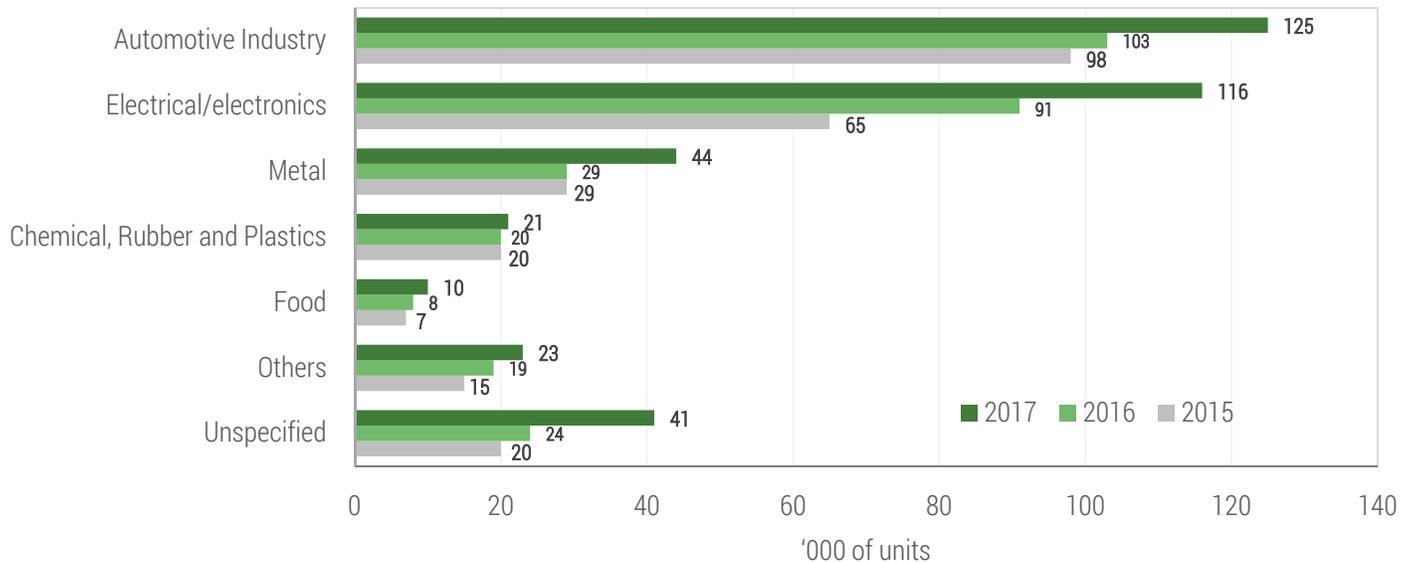
We believe that the demand for robotics and automation equipment should exceed GDP and corporate profit growth for years to come. Tractica forecasts that the revenue generated by robotics hardware and services will grow from \$39.3 billion in 2017 to \$499 billion by 2025. This represents a significant growth curve for the forecast period with a compound annual growth rate (CAGR) of 37.4%. The non-industrial CAGR is expected to be 43.3%, while the industrial CAGR is expected to be 5.3%. Over the past four years, European auto companies have been automating facilities in Europe and the U.S. The International Federation of Robotics estimates that 9,900 robots were installed in Central and Eastern Europe in 2017, up 28% from the year before. Further, the IFR projects a 21% CAGR in robot shipments by the end of this decade.

Robotics hardware and services expected to grow to  
**\$499 Billion**  
by 2025

While the robotics and automation sectors may be considered technology investments, they are indeed part of a much broader theme. Robotics companies can be found in multiple industries, including machinery, electronic equipment, consumer goods, shipping/logistics, food and beverage, transportation, and health care.

**Figure 1: Estimated Annual Supply of Industrial Robots at Year-End by Industries Worldwide 2015-2017**

Source: IFR Statistical Department



There are two sets of companies within the sectors indicated in Figure 1; companies that use and benefit from robotics and automation, and those that produce robotics. The most important aspect to consider is whether the company is a “pure play,” meaning the company must specifically derive revenues from producing and selling robotics, automation equipment, and components. Simply because Amazon and John Deere use robots and automation systems does not make them robotics or automation companies. We believe that the companies that offer investors the opportunity for portfolio diversification and growth include the robot manufacturers and automation companies, which produce programming software, sensors, visions systems, and motors, among other components.

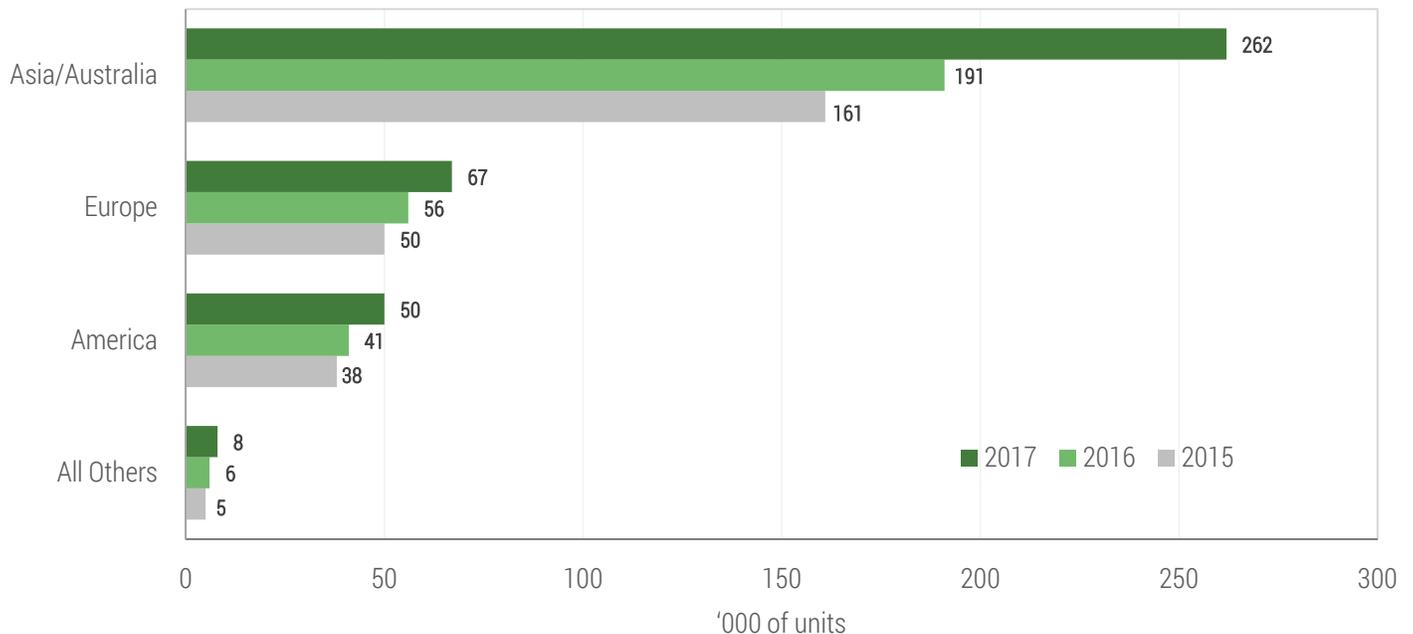
The industrial robotics market is estimated to reach \$71.72 billion by 2023, according to recent market research report by MarketsandMarkets.<sup>2</sup> According to the report, the major robotic manufacturers include: ABB Ltd. (Switzerland), KUKA AG (Germany), Mitsubishi Electric Corp. (Japan), FANUC Corporation (Japan), Kawasaki Heavy Industries Ltd. (Japan), Yaskawa Electric Corporation (Japan), Seiko Epson Corporation (Japan), Stäubli International AG (Switzerland), NACHI-FUJIKOSHI CORP. (Japan), DENSO CORPORATION (Japan), Comau SpA (Italy), DAIHEN Corporation (Japan), Omron Adept Technologies, Inc. (U.S.), Universal Robots A/S (Denmark), and CMA ROBOTICS SPA (Italy).



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**Figure 2: Estimated Worldwide Annual Supply of Industrial Robots at Year-End by Regions 2015-2017**

Source: IFR Statistical Department

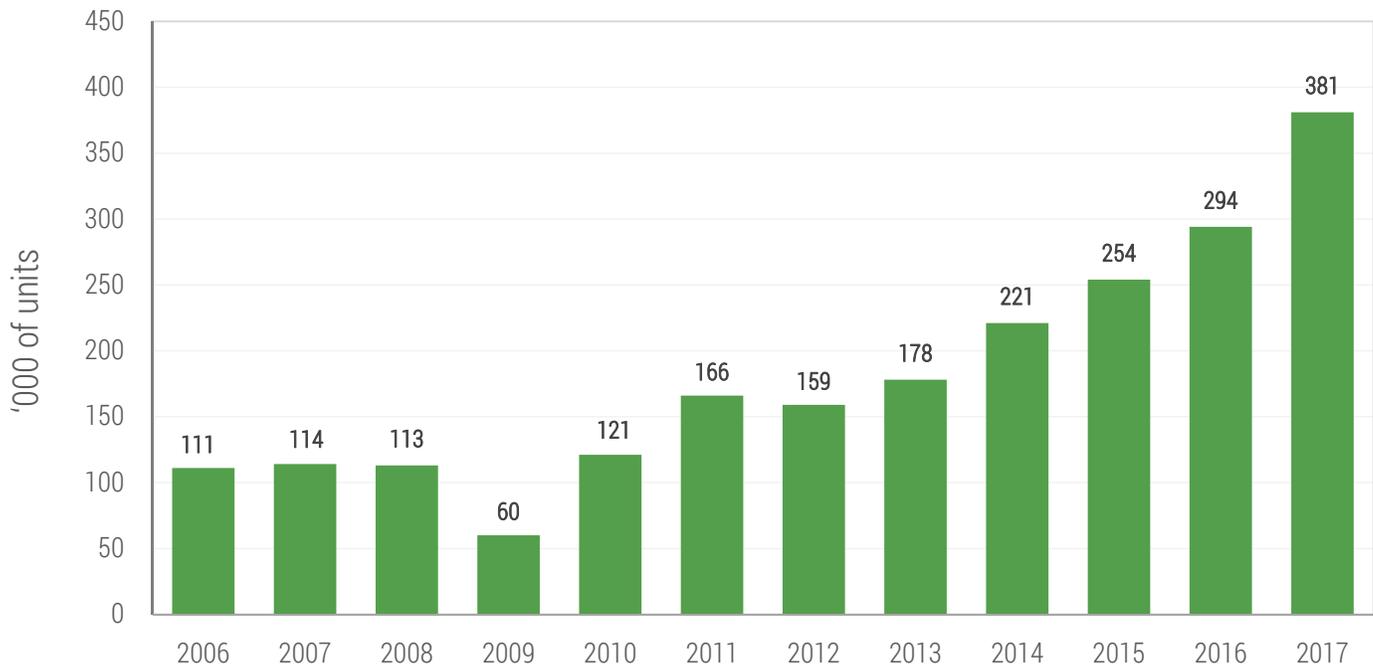


Over the past three years, companies such as Ford, GM, Tesla, and Amazon, among others, have been aggressively pursuing robotics and automation. This has created an elegant driver of demand. Once one manufacturing firm implements such automation, which significantly reduces margin cost and increases output, we believe competitors in the industry have no choice but to implement similar processes to compete. According to IFR, global sales of industrial robots reached 381,000 units in 2017, an increase of 30% compared to the previous year.

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**Figure 3: Estimated Worldwide Annual Shipments of Industrial Robots 2006-2017**

Source: IFR Statistical Department



The smart factory has become a focus of some of the largest manufacturing firms in the world. It's also spawned Industry 4.0: using the Internet of Things and Artificial Intelligence for full automation and interconnections between each unit of the assembly process. Companies such as Kardex, KION, KUKA, and Fanuc are spending a great deal of capital advancing the smart factory model. These advancements will most likely automate the manufacturing process from the manufacturing line, to storage, retrieval and shipping. Industry 4.0 may well be one of the largest changes in industrial automation in the next few years.

## Service Sector Robots Experiencing Rapid Growth

Service robots are also experiencing rapid proliferation and growth due to advances in machine programming and learning, artificial intelligence, adaptive computing, robotic vision systems, and other components. One of the fastest growing segments of the service robot sector has been in the medical and surgical robotic field. There are currently over a dozen publicly traded medical and surgical robotics companies that have FDA-approved medical and surgical robotic systems in a range of areas, including laparoscopic (minimally invasive) surgery, spine, and brain surgery. Intuitive Surgical is one company worth noting; they released the da Vinci surgical system robot over a decade ago, followed by a series of new systems that can perform remote surgeries. Over the past three years, Intuitive Surgical has become one of a growing list of surgical robotic systems.

### Figure 4: Industries Impacted by “The Second Machine Age” One powerful trend benefits many industries

Robotic solutions are used in five sectors, with 22 application communities (and growing)

Commercial	Industrial	Military	Sensors & Components	Consumer
<ul style="list-style-type: none"> <li>• Robotic surgical platforms</li> <li>• Picking, packing and sorting</li> <li>• Biotech/agriculture</li> <li>• Warehouse/laboratory automation</li> </ul>	<ul style="list-style-type: none"> <li>• Industrial robotics</li> <li>• Injection molding and machining</li> <li>• Solar cleaning and tracking</li> </ul>	<ul style="list-style-type: none"> <li>• Unmanned aerial vehicles</li> <li>• Unmanned ground vehicles</li> <li>• Autonomous marine systems and geological exploration</li> <li>• Surveying and location instruments</li> </ul>	<ul style="list-style-type: none"> <li>• Visual/cameras</li> <li>• Light</li> <li>• Motion</li> </ul>	<ul style="list-style-type: none"> <li>• Toys and entertainment</li> <li>• Bionic, exoskeleton and prosthetics</li> <li>• Education</li> <li>• Home task robots</li> </ul>

While we cannot know the specific impact from the recent tariff talks, we can establish some educated opinions. First, if the U.S. does formalize aggressive trade tariffs, it will in turn increase the cost of goods purchased by U.S. consumers. We believe the only way to compensate for this increased cost of goods for both the producer and consumer is to increase implementation of robotics and automation.

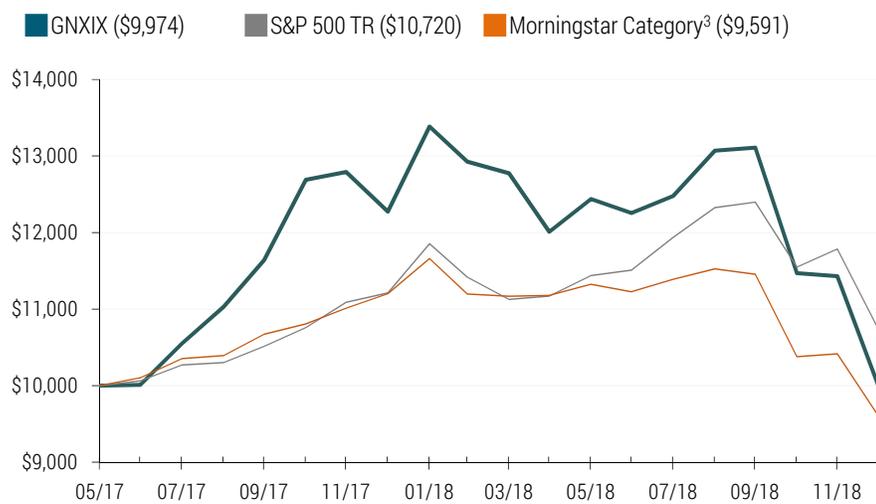
In correlation, this premise holds true for countries where tariffs would be imposed. We believe for countries such as China to be able to maintain and increase profitability, they will need to aggressively implement robotics and automation. In our opinion, robotics and automation technology has already reached a point of global adoption. We conclude they are now becoming a more mandatory survival decision for business owners, rather than a voluntary decision to increase productivity and profits.

We believe that the robotics and automation industries will continue to evolve and at a rapid speed. It seems likely the technology will now become a cost-effective expenditure due to advances in sensors, semiconductors, and wireless data transmissions. The evidence leads us to believe the efficiency gains, quality improvement, and fast payback on these expenditures are increasing the adoption rates in the industrial and service sectors. While investing in this thematic investment opportunity requires time-intensive due diligence, we believe it should not be overlooked by investors interested in exploring companies within this space.

## AlphaCentric Global Innovations Fund (GNXAX)

The AlphaCentric Global Innovations Fund (GNXAX) is the first actively managed mutual fund dedicated to automation and robotics. The Fund employs proprietary bottom up research to identify companies worldwide with innovation technologies, such as robotics and automation companies, and potential for long-term outperformance.

### GROWTH OF \$10,000 (Ending December 31, 2018)



### PORTFOLIO SECTOR WEIGHTS:

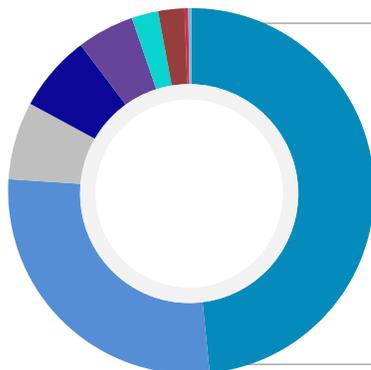
as of December 31, 2018

	Portfolio
Information Technology	35.43%
Industrials	33.96%
Health Care	21.55%
Cash	5.94%
Consumer Discretionary	3.13%

### TOP FIVE HOLDINGS: as of December 31, 2018<sup>1</sup>

Intuitive Surgical Inc	4.40%
Keyence Corp	4.16%
FANUC Corp	3.89%
Daifuku Co Ltd	3.85%
PTC Inc	3.78%

### COUNTRY ALLOCATION: as of December 31, 2018<sup>1</sup>



United States	48.39%
Japan	27.65%
Switzerland	6.88%
Britain	6.77%
Germany	5.05%
Finland	2.35%
Canada	2.33%
Australia	0.32%
New Zealand	0.25%

### PORTFOLIO CHARACTERISTICS

Long equity holdings:	35
Median Market Capitalization:	\$2.3B
Average Market Capitalization:	\$8.0B
Median P/E ratio:	24.9

Holdings are subject to change and should not be considered investment advice.

Past performance does not guarantee future results and there is no assurance that the Fund will achieve its investment objective.

**PERFORMANCE ENDING December 31, 2018** (Annualized if greater than 1 year)

Share Class/Benchmark	QTD	6 MOS.	YTD	1 YR	Inception*
Class I	-23.92	-18.60	-18.74	-18.74	-0.16
Class A	-24.01	-18.75	-19.02	-19.02	-0.48
Class C	-24.16	-19.06	-19.60	-19.60	-1.19
S&P 500	-13.52	-6.85	-4.38	-4.38	4.48
Morningstar Category <sup>1</sup>	-16.27	-14.56	-14.25	-14.25	-2.60
Class A w/ Sales Charge	-28.37	-23.41	-23.65	-23.65	-4.13

\*Inception: 05/31/2017

The maximum sales charge for Class "A" Shares is 5.75%. Gross expense ratios for the fiscal year were 2.33%, 3.28%, 2.79% for Class A, C and I shares, respectively. Performance is historic and does not guarantee future results. Investment return and principal value will fluctuate with changing market conditions so that when redeemed, shares may be worth more or less than their original cost. Current performance may be lower or higher than the performance data quoted. To obtain the most recent month end performance information or the Fund's prospectus please call the Fund, toll free at 1-844-ACFUNDS (844-223-8637). You can also obtain a prospectus at [www.AlphaCentricFunds.com](http://www.AlphaCentricFunds.com).

**FOOTNOTES**

<sup>1</sup> International Data Corporation (IDC)

<sup>2</sup> Industrial Robotics Market by Type (Articulated, Cartesian, SCARA, Parallel, Collaborative Robots), Industry (Automotive, Electrical & Electronics, Metals & Machinery, Pharmaceuticals & Cosmetics), and Geography - Global Forecast to 2023 (Rep.). (2017, July).

<sup>3</sup> GNXIX is in the World Small/Mid Stock Morningstar Category.

**FUND HOLDINGS**

As of 12/31/2018, NACHI-FUJIKOSHI CORP., Amazon, John Deere, Ford, GM, ABB Ltd., Mitsubishi Electric Corp., Kawasaki Heavy Industries Ltd., Seiko Epson Corporation, Stäubli International AG, DENSO CORPORATION, Comau SpA, DAIHEN Corporation, Universal Robots A/S, CMA ROBOTICS SPA, KION, and Tesla were all 0.0% of net assets for the AlphaCentric Global Innovations Fund. As of 12/31/2018, KUKA AG, FANUC Corporation, Yaskawa Electric Corporation, Omron Adept Technologies, Inc., Intuitive Surgical, and Kardex AG were 2.67%, 4.14%, 2.01%, 3.97%, 4.68%, and 3.90% of net assets for the AlphaCentric Global Innovations Fund.

**IMPORTANT RISK DISCLOSURES**

Investing in the Fund carries certain risks. The Fund is a relatively new fund and has limited performance history. The Fund may invest a percentage of its assets in derivatives, such as futures and options contracts. The use of such derivatives and the resulting high portfolio turn-over may expose the Fund to additional risks that it would not be subject to if it invested directly in the securities and commodities underlying those derivatives. The Fund may experience losses that exceed those experienced by funds that do not use futures contracts and options strategies. To the extent the Fund invests in the stocks of smaller-sized companies, the Fund may be subject to additional risks, including the risk that earnings and prospects of these companies are more volatile than larger companies. Smaller-sized companies may experience higher failure rates than larger companies and normally have lower trading volume than larger companies. These factors may affect the value of your investment. The Fund is non-diversified and as a result, changes in the value of a single security may have significant effect on the Fund's value. The Fund is subject to regulatory change and tax risks; changes to current rules could increase costs associated with an investment in the Fund. These factors may affect the value of your investment. Investments in international markets present special risks including currency fluctuation, the potential for diplomatic and political instability, regulatory and liquidity risks, foreign taxations and differences in auditing and other financial standards. Risks of foreign investing are generally intensified for investment in emerging markets. Emerging market securities tend to be more volatile and less liquid than securities traded in developed countries. 4106-NLD-1/14/2019

Investors should carefully consider the investment objectives, risks, charges and expenses of the AlphaCentric Funds. This and other important information about the Fund is contained in the prospectus, which can be obtained by calling 844-ACFUNDS (844-223-8637) or at [www.AlphaCentricFunds.com](http://www.AlphaCentricFunds.com). The prospectus should be read carefully before investing. The AlphaCentric Funds are distributed by Northern Lights Distributors, LLC, member FINRA/SIPC. AlphaCentric Advisors LLC and Contego Capital Group, Inc. is not affiliated with Northern Lights Distributors, LLC.

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