



INVESTING IN ROBOTICS & AUTOMATION

Robotics & Automation is a driving force of the future across the global economy. The accelerating pace of technology diffusion is making robotics as ubiquitous as computers. The convergence of falling technology prices, performance improvements and increasing penetration should provide outsized growth vs. the market for years to come. As an asset class, Robotics & Automation offers investors an uncorrelated return relative to other technology equities, with low overlap to most indices and under-followed by Wall Street.

ROBO Global defined the investable universe of Robotics & Automation. The index methodology is transparent and rules-based. It is designed to bring stability to a high growth industry through balanced diversification across 15 countries and 13 subsectors. The multi-cap structure (20% large-cap, 40% mid-cap, 40% small-cap) offers investors meaningful exposure to the expected growth. A unique coverage team comprised of financial, research, and academic leaders from within the robotics & automation industry supports the index.

Why Invest in Robotics, Automation and Enabling Technologies

Key drivers accelerating the revenue growth of robotics companies:

- **Advancing Technology with Decreasing Costs** are creating a competitive environment. Technology costs and sizes are decreasing while speed and power are increasing; ultimately, opening up an array of new business applications that investors and consumers are just beginning to appreciate.
- **Emerging Applications** are entering and assisting new areas of our day to day lives. Co-bots can now work side by side humans in industrial settings, robotic systems are completing surgeries with sub-millimeter accuracy, 3D Printing is radically lowering product replacement cycles while catering to mass customization and lower costs in manufacturing, and soon a world of autonomous vehicles.
- **Shifting Demographics** are demanding an alternative for the soon to be shrinking workforce and to provide care for the aging population – robots can stand in as workers but also caretakers.
- **Social & Society Changes** are creating a new world that requires a new outlook. Wage inflation, safety concerns, natural resource scarcity and increasing e-commerce are all questions that need efficient solutions.
- **Investment Flows into Robotics** from government, corporate, and private companies are increasing. From tackling record-breaking, low productivity rates to investing in the newest innovations, an opportunity for growth lies in robotics.



ROBO Global Robotic & Automation Index

- The ROBO Global team of leading [robotics experts and financial analysts](#) created and defined the universe of robotics for investors. They compiled the first cumulative database of global robotics companies and built the world's first Robotics Index.
- The ROBO Global Index is comprised of 13 subsectors, which capture the entire value chain of the robotics, automation and enabling technology for investors.
- The portfolio is globally diversified and provides exposure to many companies that investors do not own; less than 2% overlap with the S&P 500 and ACWI
- **The portfolio has earnings growth expectations that are almost double the market with a comparable valuation to broad market indices. (Chart below)**

Industry Facts & Predictions

- Well over \$1 billion in robotics funding in 2016 to date. (Source: The Robot Report)
- Robotics & Automation Market will be worth \$1.2 trillion by 2025, a CAGR of 35% (Source: Myria Research)
- Widespread robotics adoption to decrease labor costs 18-25% by 2025 in China, Germany, USA and Japan (Source: BCG)
- Global manufacturing costs account for \$6 trillion annually, allowing for considerable potential for automation savings. (Source: McKinsey)
- \$5 million for the fastest supercomputer in 1975 vs. \$400 for an iPhone 4 with equal performance (Source: McKinsey)
- Within five years, 1/3 of U.S. surgeries (from 15% today) will be performed with robotic systems. (Source: Fortune Magazine)
- The cost of collaborative robots range from \$29,000 to \$60,000. Universal Robots claims that the average payback period for their UR-robot is 195 days
- By 2018, UAVs will be used by nearly every major manufacturing company to control logistics. (Source: Mind Commerce)

CAGRs Worth Noting (compound annual growth rate)

- **Global Drone Market:** 32% to 2020 (Source: Markets and Markets)
- **Exoskeleton Robotics Market:** 51% to 2020 (Source: Infiniti Research)
- **Service Robotics Market:** 24% to 2023 (Source: The Robot Report)
- **3D Printing Market:** 73% through 2019 (Source: Gartner)
- **Collaborative Robotics Market:** 60% through 2022 (Source: Markets and Markets)



Market Growth Opportunity

- **Artificial Intelligence:** \$643.7 million in 2016 to \$38.8 billion by 2025 (Source: Tractica)
- **Medical Robotics:** \$7.24 billion in 2015 to \$20 billion by 2023 (Source: Credence Research)
- **Logistics Automation:** \$33.6 billion by 2022 (Source: Knowledge Sourcing Intelligence)
- **Agricultural Robots:** \$16.8 billion by 2020, \$73.9 billion by 2025 (Source: Tractica)
- **3D Printing:** \$30 billion by 2022 (Source: MarketsandMarkets)
- **Drones:** \$7.8 billion today will exceed \$60 billion by 2020 (Source: Macquarie)
- **Manufacturing Robotics:** \$79.5 billion by 2022 (Source: MarketsandMarkets)
- **Household Robotics:** \$33 billion by 2025. (Source: Robotics Business Review)
- **Self-Driving Cars (Partially/Fully Autonomous):** \$42-77 billion by 2025-2035 (Source: BCG)

| GROWTH 3 yr. (2016-'18) | est. Sales growth | est. EBITDA growth | est. EPS growth |
|--|-------------------|--------------------|-----------------|
| ROBO Global Index | 17.7% | 60.5% | 42.0% |
| MSCI ACWI IMI | 10.6% | 19.5% | 26.8% |
| S&P 500 Index | 12.3% | 18.0% | 25.1% |
| S&P Global BMI Information Tech | 8.5% | 20.9 | 24.1% |

*3Yr (2016 –2018) estimates
Source: Bloomberg, ETF Securities

| VALUATIONS | BEst P/E | Price to Book (P/B) | P/Sales | P/CF |
|---|-------------|---------------------|------------|-------------|
| ROBO Global Index | 22.4 | 2.5 | 1.7 | 18.2 |
| MSCI ACWI IMI | 17.4 | 2.0 | 1.4 | 8.8 |
| MSCI World Growth | 17.0 | 2.1 | 1.5 | 8.5 |
| S&P Global 1200 IT Sector | 17.0 | 2.1 | 1.5 | 8.3 |
| Bloomberg World Technology Index | 17.1 | 3.6 | 2.4 | 11.5 |
| NASDAQ | 22.7 | 3.6 | 2.4 | 15.5 |

*As of 9/30/2016, ROBO Global Index
Source: Bloomberg



Q3 2016 PERFORMANCE

| GLOBAL | | QTD % | YTD % | ROBO CLASSIFICATION | QTD % | YTD % |
|----------------------|--------|----------|----------|----------------------|----------|----------|
| ROBO ACWI | | + 13.1 % | + 16.6 % | TECHNOLOGIES | + 15 % | + 20.2 % |
| | | + 5.1 % | + 7.3 % | APPLICATIONS: | + 11.9 % | + 14.2 % |
| AMERICAS | | | | 1. 3D PRINTING (A) | + 38.4 % | + 74.2 % |
| | | | | 2. COMPUTING (T) | + 23.8 % | + 16.2 % |
| S&P 500 | USA | + 4.2% | + 6.0 % | 3. INTEGRATION (T) | + 14.3 % | + 25.9 % |
| RUSSEL 2000 | USA | + 9.0 % | + 11.4 % | 4. PROCESSING (T) | + 14.2 % | + 19.5 % |
| S&P TSX | CANADA | + 5.5 % | + 15.8 % | 5. MANUFACTURING (A) | + 13.6 % | + 8.6 % |
| EUROPE / ASIA | | | | 6. ACTUATION (T) | + 12.1 % | + 21.6 % |
| | | | | 7. HEALTHCARE (A) | + 11.8 % | + 19.8 % |
| NIKKEI 225 | JAPAN | + 6.3 % | - 12.1 % | 8. LOGISTICS (A) | + 11.5 % | + 24.8 % |
| SSE 180 | CHINA | + 4.8 % | - 10.8 % | 9. SENSING (T) | + 10.9 % | + 12.5 % |
| CAC 40 | FRANCE | + 5.2 % | - 0.9 % | 10. CONSUMER (A) | + 8.2 % | - 13.1 % |
| FTSE 100 | UK | + 7.1 % | + 14.2 % | 11. AGRICULTURE (A) | + 6.1 % | + 14.4 % |
| | | | | 12. ENERGY (A) | + 5.6% | - .1 % |
| | | | | 13. SURVEILLANCE (A) | - 5.4% | - 2.2% |