

 Automation Alley®

Technology 20 19 In Industry Report

Industry 4.0: From Vision to Implementation

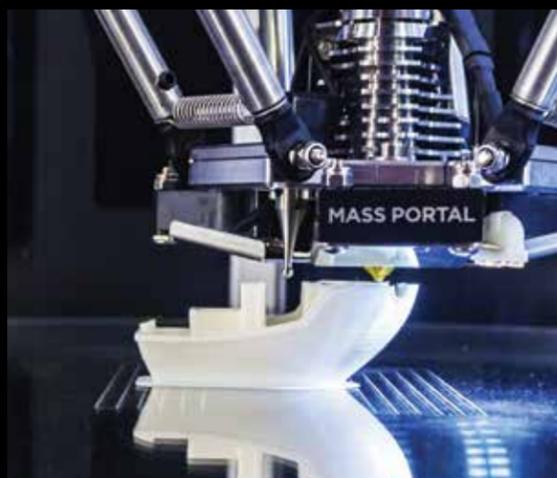


“The more we think about how to harness the technology revolution, the more we will examine ourselves and the underlying social models that these technologies embody and enable, and the more we will have an opportunity to shape the revolution in a manner that improves the state of the world.”

- Klaus Schwab, Founder and Executive Chairman, World Economic Forum

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Foreword



What are the possibilities of The Fourth Industrial Revolution? We are only beginning to scratch the surface of what is imaginable through Industry 4.0. Today, in factories across the globe, products fitted with sensors are interconnected and sharing information, machines can learn to optimize processes and fix themselves before they fail and robots are working collaboratively alongside human workers.

By 2025, Industry 4.0 is expected to generate close to \$1 trillion in economic value. Through Industry 4.0, large manufacturers are becoming more streamlined, efficient, agile and are seeing improved production outputs and increased sales. However, to unlock the true potential of this revolution, all businesses along the supply chain must adapt and implement a digital mindset.

As Michigan's Industry 4.0 knowledge center, Automation Alley's mission is to help manufacturers of all sizes understand the rapid technological changes associated with digitalization so that our state—and our nation—remain globally competitive. This 2019 report, "From Vision to Implementation," is a guide to help your company assess its current position and get you on a path to long-term success: one led by a new business model that's driven by information to spark innovation.

In 2017, our report gauged your readiness for Industry 4.0, in 2018 we gave you the tools to harness its power and in 2019 we are calling you into action.

Just as the way we work is changing, so to is the way we must think about our education system. While Industry 4.0 will eliminate many blue-collar jobs, "new-collar" jobs are emerging. Through this collaborative report, Automation Alley is empowering industry and academia to work together to upskill our current workforce to meet new technological demands while ensuring our children are prepared for the jobs of the future.

Tom Kelly
Executive Director & CEO
Automation Alley



About This Report

Imagine Industry 4.0 as a human body, where artificial intelligence and machine learning are the brain, Big Data and IoT connectivity are the central nervous system and robotics are the muscle. Together, these smart technologies are creating intelligent networks along the entire supply chain, opening the floodgates to innovation and creating upheavals to our industries and our society.

Automation Alley's 2019 Technology in Industry Report is a response to the overwhelming need for knowledge and direction related to Industry 4.0. It's a data-driven guide to smart technology implementation, featuring use cases, emerging trends, challenges, opportunities and action items for industry, designed to help business, educators and policy makers keep pace with the velocity and magnitude of change related to Industry 4.0.

The report also features a study of three key segments spanning four generations of Southeast Michigan's Industry 4.0 talent pipeline.

Our unique approach to the creation of this report includes a collaborative team of academic and corporate partners, who center their research around the eight core technologies of Industry 4.0: The Internet of Things, Big Data, cloud computing, cybersecurity, robotics, artificial intelligence, additive manufacturing and advanced

materials and modeling, simulation, visualization and immersion.

New to this year's report is the Velocity Index, a powerful tool designed to help companies assess the maturity of Industry 4.0 technologies and their projected rate of development within various industries. Through simple charts, the Velocity Index provides a snapshot of each technology sector's potential for return on investment, providing corporate executives with an independent opinion of Industry 4.0's potential to impact their bottom lines.

Separately, the eight technologies of Industry 4.0 are creating waves across all industries, but, when integrated together, they are transformative. As Michigan's Industry 4.0 knowledge center, Automation Alley's goal with this report is to help you leverage the intersections of Industry 4.0 technologies, systems and people to gain a considerable competitive advantage.

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