

Positioning for Success with Industry 4.0

by Joe Dury, Michael Glessner and Nate Buyon

Industry 4.0, widely considered to be the 4th Industrial Revolution, is the current trend of automation and data exchange in manufacturing technologies. It includes cyber-physical systems, the Internet of things (IoT), cloud computing, and creating smart factories featuring autonomous controls. Industry 4.0 has the potential to affect every aspect of manufacturing business. The rate and pace of change are staggering, but the companies who succeed will be those that commit to learning from those who are seeing results with Industry 4.0.

Industry 4.0 will change the competitive landscape across any industry that has a manufacturing component in the supply chain. Aspects of business that were previously insulated from one another will blend together. Companies must quickly adapt to internal and external pressure to innovate with new products, so traditionally discrete business units will need to come together to meet market demands. For example, the line between development and manufacturing will blur due to an even faster rate of technology adoption and the need to constantly tune the customer experience. Companies that do not change and adapt will find it increasingly difficult to sustain any sort of competitive advantage.

The Google/Alphabet story is a perfect example of investing in change, highlighting how companies can play in multiple industries. They generate most of their profits through advertisements, but also have highly touted endeavors into automated cars, enterprise cloud storage, mobile operating systems, robotics technologies, and a plethora of productivity and media software products. It's increasingly difficult to define their industry. Their list of competitors is extensive, but they are clearly successful. Alphabet has about \$73 billion in cash, while Ford's market cap was about \$47 billion at the end of October. This math tells us that no industry is safe from disruption. In this case, a twenty-year-old company has over \$20 billion more in cash than the market value of a 113-year-old company.

Success in the New Era

Before we talk about the future, let's look back to how companies have learned from each other in times of change. Facebook learned from early social media and messaging platforms like Myspace and AOL instant messenger. Although it took some time, Detroit's Big 3 auto companies - Ford, GM, and Chrysler (now FCA) - learned from their Japanese rivals in the 1980s and reformed in the 1990s. Then there's the story of Zara, which is now the world's largest fashion retailer by essentially copying department stores and high-end retailers. Zara is successful by innovating in the areas where department stores and high-end retailers have historically been complacent; getting new products to market quickly while simultaneously competing in price and style.

For the past few years, much of the Industry 4.0 hype in the business press has focused on big data and finding ways to analyze and mine this data for strategic insights. Today, the insights that come from smart, connected products and the IoT are beginning to yield strong results. But while smart, connected products have come a long way from their Radio-Frequency Identification (RFID) ancestors for consumers and discrete factories, the far more disruptive opportunity is around both the manufacturing and service of these products, allowing them to enable more robust processes and more fulfilling customer experiences.

The high tech and semiconductor industries are leaders in this brave new world. These companies create high fidelity digital prototypes, mitigating the risk of physical and mechanical defects late in the production cycle, and creating products that can be rapidly updated in the end user's world. This digital development process aligns the data and information from design and simulation, contained in the virtual digital space, with the data and information required for the production of the physical products. The approach has some clear advantages, including spending less time and resources on physical prototyping, and less money on warranty and replacement costs. Additional benefits include reducing development cycle time, enabling a way to upgrade products, promoting a more effective value chain and inventory management process, and enabling faster time-to-market and feedback loops that react to user preferences. A simple example (that we all take for granted) now is how our smartphones are updated daily with application fixes and operating system upgrades without even leaving our living rooms or nightstands.

Other companies have adopted the concept of a digital twin to enable even smarter factories, allowing manufacturing improvements with virtual factory replication. This approach can predict when a part or production line is going to fail. The digital twin helps companies anticipate issues before they happen and address them before they impact revenue, often with minimal human intervention.

Getting Started on the Industry 4.0 Journey

A wait and see approach is no longer valid. To advance your organization in Industry 4.0, the most important step is an honest assessment of capabilities. Industries will collide, so companies must look across industry boundaries to baseline their capabilities in smart, connected manufacturing. Industrial manufacturers who are not at least experimenting with smart, connected products or digital development methods and tools are already lagging. Even if things seem fine as they are, capability gaps will only widen as bottom and top lines shrink and the threat of commoditization grows. Industry 4.0 has already proven that with greater automation comes fewer defects, lower labor costs, and better cash flow management.

This is going to be a journey, and it's all about learning how to innovate in the digital world of Industry 4.0. Start by looking for leading examples, assessing current capabilities, and getting help from a trusted advisor with deep industry knowledge and broad digital experience.

Be prepared to learn fast, fail fast and adjust, as you look for opportunities to quickly gain competitive advantage while proving long-term business value.

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About the Authors



Joe Dury

joe.dury@kalypso.com

Joe has over 30 years of industry and client service experience working as an executive and advisor at Fortune 500 companies to deliver results by combining strategic planning and implementation of new process and technology to transform the business.



Michael Glessner

michael.glessner@kalypso.com

Michael is a Director with Kalypso. His areas of expertise include new product development, business and innovation strategy, large-scale organizational change leadership, and open innovation. Michael recently restored a 1969 Camaro that he has owned for years.



Nate Buyon

nate.buyon@kalypso.com

Nate is a senior consultant at Kalypso.