
How Small and Mid-Sized Manufacturers Can Harness the Transformative Power of Technology

Kelly McGowan, American Securities

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Technology is changing the way manufacturing businesses operate by enabling terrific improvements in efficiency, productivity and quality while continuously driving down costs, as well as material and energy consumption. However, not every business has benefited from technology's transformative power. Most large, well-resourced businesses have made investments in process technology, particularly information technology, and built a robust infrastructure to support every aspect of their operations, from inventory control and production planning, to logistics and transportation.

The "technology gap" between large companies and SMBs (small- to medium-sized businesses) has historically been substantial. Most SMBs have not had the resources to compete and the playing field has been tilted in favor of large, resource-rich companies. Larger companies have had both a capital *and* an intellectual property advantage by being able to attract top technology talent.

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For SMBs to be competitive, they must take steps to close the technology gap. Fortunately, in terms of technology costs and capabilities, this is a unique time for SMBs to reimagine and recreate their capabilities. The maturing of the software-as-a-service (SaaS) industry, availability of vast amounts of data, predictive analytics, cloud storage and other technologies have made it possible for SMBs to compete with and even outpace larger businesses. Critical technologies are now much more widely available and highly affordable.

Industry-specific Technology Changes the Game

One of the most significant changes has been the development of software and enterprise-wide technology that is designed to specifically meet the needs of particular industries. This has multiple advantages. The technology doesn't have to be "over-configured" to be functional; the functionality is built in. It can also be deployed quickly and cost-effectively, with less effort and less risk.

Clearly, technology can be transformative. To help harness its power, SMBs in the manufacturing and industrial sectors may want to explore the three main avenues described in the sections below.

Leverage Investments in ERP

After decades of investment, enterprise resource planning (ERP) systems can now connect all departments and functions across a company into a single integrated system that is supported by company-wide data. It

is now possible to collect and analyze a wide range of information and communicate seamlessly in real time. With this foundation, manufacturing businesses can become more attuned to their markets and customers and more efficient.

That was the case for one company, a manufacturer of industrial pipe products. The company implemented and leveraged an ERP system throughout its 53 plants and 23 distribution centers both domestically and internationally.

Within the first few years, this manufacturing company saved millions of dollars on production, sales and operations, forecasting, transportation, logistics and other processes and functions. It also created a foundation for ongoing performance improvements and continued financial savings.

The ERP industry has matured so that there is frequently a vendor that has a deep level of domain knowledge and expertise in the industry in which the customer competes. This reduces the expense, risk and time required to benefit from these technical innovations.

Assess Capabilities, Develop Goals

To find the best technology solution, the first step for many SMBs is to assess their current capabilities—function-by-function and system-by-system—and most importantly, their goals. Establishing a clear, defined set of priorities is critical to the success of any investment in change and innovation.

The resulting proposed change in process, technology, or measurement should have a clear rationale and economic or business benefit. This end-to-end analysis can be challenging; some SMBs look to outside consultants and technology providers. In any case, an honest assessment of organizational capabilities and capacity is crucial for success.

Manufacturing and industrial SMBs may be struggling with legacy systems that no longer meet their needs. Older systems may be isolated internally and externally or incompatible with newer technology. Upgrading and maintaining outdated and inflexible systems can be cost-prohibitive and labor-intensive.

As an alternative to in-house technology, many manufacturers are looking to a new generation of systems that use software as a service (SaaS), cloud connectivity, cloud storage and mobile applications. This approach is often less expensive, faster to implement, more efficient to operate and easier to scale.

ERP solutions can link manufacturing facilities with all of a company's business functions, including finance, procurement, distribution, sales and customer services, providing visibility across the business and supporting continuous improvement.

Integrated ERP systems are becoming essential to harnessing some of the fastest-growing and most significant developments in manufacturing and virtually every other industry—Big Data and data analytics, social media and mobile technologies.

These end-to-end integrated systems are the backbone of achieving both operational excellence as well as sustainable competitive market advantage through a higher velocity of product innovations, quality advances and improvements in customer services.

SMB IT teams and leaders need to lead the charge and educate management about the strategic value of these new developments in technology.

Understand and Exploit the Power of Data Mining and Analytics

While Big Data has gotten a lot of attention from large corporations, many smaller manufacturing businesses aren't fully aware of how much data they hold and generate on a daily basis and how to put that data to work. A common misconception among many companies is that they don't have a lot of data. That's generally not the case and smart use of data is an undeniable advantage. This is the advantage of "little data."

Management at the largest tire collection and recycling company in the United States found that relatively simple use of existing data and the capabilities of an ERP system helped it greatly improve its operations.

One of the company's largest costs is picking up tires. At one point, the company, which had grown through multiple acquisitions, collected tires when individual customers requested a pick-up. That meant that drivers might be making pick-ups during rush hour or trucks might only be partially filled.

The collection system was inefficient and expensive. The company already held extensive data on its customers, such as pick-up histories. This data would prove to be the key to improving efficiencies.

Using data mining and analytics, the company was able to proactively and strategically schedule its fleet. It also began using smartphones equipped with digital signature capture capabilities. That allowed the company to invoice immediately for its services, saving 24-48 hours in the billing and collection cycle.

Power of Data to Discern Trends

The company was able to leverage its own "little data" to make significant improvements in operational excellence in logistics, supply chain and customer service.

From a business intelligence point of view, data can help pinpoint customer trends and marketplace gaps, helping companies respond quickly and take advantage of opportunities. It can also be tied to macroeconomic indicators that drive the business.

From a sales perspective, data can be used for targeted marketing, cross selling and up selling, and to provide personalized service.

Manufacturers should ensure their technology supports data collection and analytics and builds their capacity as needed. The importance of data and data analytics will grow exponentially in the coming years. We characterize this approach as "information engineering." The modern company competes on weaving all of its business systems into a seamless delivery of information to professionals at every level in a reliable, consistent and timely fashion.

Harness the Power of Social Media and Mobile Technologies

In general, manufacturing has lagged other industries in the use of social media and mobile technologies. Manufacturers need to get up to speed with B2B and/or B2C social media (depending on who their customers are). This will allow them to communicate with potential and existing customers.

Tapping into this digital exchange of information can provide invaluable information, such as changing customer demands and market conditions. Some of the companies in which we have invested are using social media applications such as LinkedIn and Facebook to transform their recruiting and customer service processes.

Mobile technologies can also be used to help stay in touch in the physical world, which is particularly

important in the manufacturing and industrial spheres. One company in which we invested, in the auto parts manufacturing industry, is deploying mobile technology to allow a plant manager to monitor and control many of the plant operations.

With a wealth of mobile technologies—smart phones, tablets and laptops—and location-based sensing technologies, managers never need to be out of touch with their key people, a company’s operations, or more importantly, customers in the ongoing digital conversation.

To ensure real-time communication and provide an ongoing knowledge base, social and mobile tools, data and ERP must all be integrated.

Harnessing Technology to Transform Manufacturing

Manufacturing today is worlds away from where it was ten, five or even just a few years ago and there’s much more to come. Smaller manufacturers are at a critical point. They have a wonderful opportunity to incorporate and leverage advanced technology and processes as a competitive advantage. This is proving crucial for creating what consultant Steven Spear calls the “[high velocity organization](#).”

Just as the physical manufacturing has undergone the process of capturing the advantages of lean processes, continuous improvement and a relentless pursuit of quality and innovation, the technology and information process is undergoing a similar transformation of driving innovation and improvements in each and every business process within an organization.

Kelly McGowan joined [American Securities](#) in 2007 as the director of information systems & technology to implement and help execute complex IT strategies to enhance the growth of companies in which the firm has invested. American Securities is a middle-market private equity firm that invests in North American-based companies with revenues ranging from \$500 million to \$2 billion and currently has more than \$10 billion under management. Previously, McGowan was chief information officer at Fresh Direct. He was also a founding partner of Oceanview Consulting. In addition, he served as CIO of Cowen & Co. and Société Générale.

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