

Case Study

**A Major Impact:
 Collaboration Between
 Business, Industry and
 Academia**

Newton Green

Organizations like CIMS can have a major impact on technology implementation, particularly for small companies. They can also assist firms in properly assessing what state and federal funding may be available to assist with the cleaning process.

The implementation of advanced technology can often increase efficiency, improve productivity and enhance overall competitive advantage. When working with surface cleaning technologies, the benefits can be even more compelling when environmental factors and stringent governmental regulations are taken into account. Using new innovations and technical knowledge can reduce cleanup costs, decrease energy use and assist in reducing hazardous waste generation.

Enhancing Processes

Lou Romano, owner of Romold, Inc.—an injection mold manufacturer in Rochester, NY—has become increasingly aware of the need to enhance processes to meet the growing needs of his clients while also continuing to produce high quality products at reasonable prices.

One of the technology issues Romold was facing was how to implement a cost-effective and high quality process that could restore used molds to a like-new condition—technology the company had been unable to research and test on its own. Romold's customers were coming back to the firm with older molds they wanted to continue to use but could not due to rust and heavy contamination from frequent use. The adoption of a suitable cleaning process would allow Romold's clients to reuse these molds, avoiding unnecessary replication. In addition, Romano saw this innovation as a way to provide further value to his customers and set Romold apart from its competitors. "The injection mold industry is a highly competitive business and we recognize the continuous need to set Romold apart from other firms in terms of product quality and services provided," says Romano.

Identifying Cleaning Technologies

The question for the company then became how do you identify what cleaning technologies to use without impacting regular production? How do you ensure that the cleaning technology implemented is optimal for your business? Like many small to medium sized businesses, Romold does not have an internal R&D facility or permanent research staff. They also found it challenging, both from a time and resources standpoint, to research what technologies were available to help them make the needed improvements to their cleaning processes. "As a small manufacturer with most of our staff focused on production, we were finding it difficult to address our technology support needs," adds Romano. "We needed technical assistance to identify and assess new technology, evaluate what the best processes were for our business and properly gauge what resources may be available to help us with that process."

Extend of Innovation Barriers

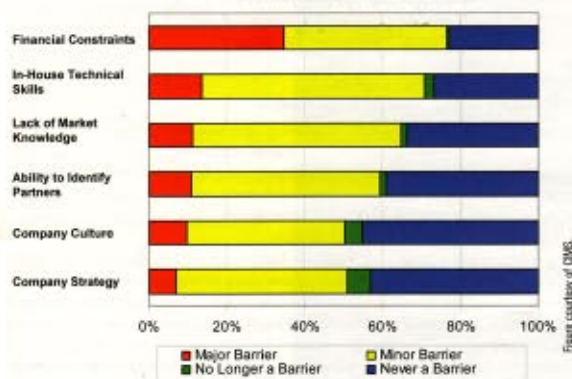


Figure 1
 Extent of innovation barriers. Through a survey conducted by CIMS, companies were asked to indicate the barriers they faced in enhancing innovation. Financial constraints and lack of in-house technical skills were the two most common reasons indicated.

"This is a classic chicken and egg scenario facing many U.S. manufacturers," notes Grant Osman, past president of the Rochester Tooling and Machining Association (RTMA), a trade group that seeks to help member companies in addressing these questions. "Previously, larger manufacturers anchored networks of businesses based in a region and worked with smaller companies to enhance business processes and innovation for the benefit of all."

Osman notes that these networks allowed smaller companies to take advantage of the resources that larger firms—such as Eastman Kodak Company in Rochester or Ford Motor Company in Detroit—could spend on technology improvements and implementation, leading to a trickle-down effect that supported all businesses in the network. However, given the recent off-shoring trend as well as the decline of large domestic manufacturing operations, these networks are not as strong as they once were. As a result, smaller companies are increasingly required to innovate on their own, taking on the associated costs themselves, or being forced to go without.

Challenges

A recent survey of upstate New York manufacturing conducted by Rochester Institute of Technology illustrates the myriad of challenges to innovation facing small and medium sized companies. The firms studied indicated that financial constraints, lack of in-house technical skills, lack of market knowledge, the inability to identify partners, company culture and company strategy were all barriers to their innovation activities (see Figure 1, page 27).

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Many business and technology experts now see the enhancement of collaboration between industry, government and academia as a key strategy to address the issues caused by this new business environment. Through the application of research being conducted at American colleges and universities with the assistance of government funding and training, small businesses can receive the technical assistance they need to implement new innovations, improve their processes and enhance competitive advantage.

CIMS Addressing Technology Needs

Osman, who currently serves as partnership development manager at Rochester Institute of Technology's Center for Integrated Manufacturing Studies (CIMS), adds that CIMS has had considerable success in helping companies address their technology needs through a wide variety of technical assistance projects designed to enhance cleaning processes, facility layouts, workforce development, equipment and process design, as well as ergonomics, health and safety.

"Companies that we work with generally know they need to improve; we simply provide the expertise and capacity to help them make better decisions," Osman says. "Numerous other colleges and universities are now following this same applied research model and there are a host of state and federal funding programs that can assist firms in paying for these services."

Romano had seen a presentation of the technology transfer and assistance programs offered by CIMS during an RTMA meeting held on RIT's campus late last year and he was impressed with the center's expertise and equipment, including its surface cleaning laboratory. Romano then contacted the center to assist in cleaning molds for his clients. Using a grant for innovation development provided by the New York State Foundation for Science, Technology and Innovation (NYSTAR), CIMS evaluated alternative cleaning processes for molds with differing levels of contamination and used two innovative cleaning technologies, both of which are environmentally friendly and cost-effective processes. CIMS then cleaned actual molds using the best processes identified in the assessment, and the firm was able to return the molds to their client for reuse.

Since then, Romano has contacted CIMS staff to assist him in additional projects and will now look for an opportunity to utilize their lean manufacturing training in the near future. "CIMS offers state-of-the-art technology as well as staff with hands-on, real-world expertise," Romano adds. "I was very impressed with the results of the project and am now looking for additional opportunities to work with the center in the future. As a small manufacturing company with limited resources, an organization like CIMS can provide the additional knowledge and resources necessary to enhance my efficiency, productivity and quality."

A Major Impact

Organizations like CIMS can have a major impact on technology implementation, particularly for small companies. They can also assist firms in properly assessing what state and federal funding may be available to assist with this process. Given the continued pressures of our global economy, this type of collaboration between business, industry and academia will be an essential component for improving American manufacturing. The key is to broaden the assistance that is available and support programs that can more strongly

link the firms that need help with technology transfer organizations that can provide it.

"There are currently a number of initiatives designed to provide stronger government support for innovation translation and promote broader collaboration between academia and industry, including the National Innovation Act, which is now working its way through Congress," notes Osman. "It is my hope these efforts will lead to the creation of a strong network of support that can assist American companies in using new technology and enhancing competitive advantage." **PCM**

Newton Green is a senior staff engineer at Rochester Institute of Technology's Center for Integrated Manufacturing Studies (CIMS), where he manages project teams and provides technical assistance to manufacturing companies and government agencies in process design and control, chemical engineering and pollution prevention. Newton has more than 20 years of experience in the areas of consulting engineering, environmental management and project management. He holds a BS degree in engineering from Brown University, and an MBA and Master of Engineering degree from Dartmouth College. Newton can be reached at (585) 475-7563 or via e-mail at nbgcam@rit.edu.