

Faradyne Motors LLC targets data connectivity as first step towards digitalization



Company	Sector	Size	Location
Faradyne Motors LLC	Submersible pump motors for water and fuel	25 employees	Palmyra, New York

At a glance

- Faradyne Motors LLC (Faradyne) is a medium-sized manufacturer that believes data-driven digital technologies can improve its overall operating efficiency. While the company has automated many of its processes, automation is only one piece of the much larger puzzle that makes up Industry 4.0.
- Faradyne partnered with RIT to learn how the company could expand beyond automation to enable Industry 4.0. A site assessment by engineers from [Rochester Institute of Technology's \(RIT\) Industry 4.0 Transition Assistance Program](#) was followed by a full-day workshop, which resulted in a digital-readiness assessment. The review focused on specific dimensions of digitalization: 3 process-related, 12 technological, and 4 organizational. Next, the RIT team worked with key company decision makers to create a long-term Industry 4.0 plan: a digital-readiness roadmap and a set of strategic milestones for the next 3 years.
- One of the most important and near-term tasks pinpointed in the plan was to integrate Faradyne's operational and technical data into a global, unified information system. This would serve as a critical step in realizing data connectivity between the shop floor and enterprise, a pillar of Industry 4.0.
- In support of this, RIT and Faradyne worked together to identify areas where data-harvesting technologies, like sensors and edge devices, could be installed across Faradyne's manufacturing processes. This analysis considered different types of process data and the associated opportunities for improving quality or operational efficiency.

Company

Faradyne Motors LLC manufactures submersible motors. Faradyne's motors are sold throughout the United States and Canada, and can serve both low- and high-power applications.

Business challenge

Faradyne has automation technologies in place across its production and assembly lines to improve its overall efficiency. It is more advanced than many similarly sized manufacturers in this regard. While automation is without doubt an important lever of Industry 4.0, it is only one piece of a much larger puzzle; the successful digital factory demands a clear strategy for harnessing and utilizing operations data.

"Industry 4.0 is about advancing data-driven processes to improve business results more than it is about using any specific technology," says Gerry Hurley, technical program manager for manufacturing at RIT. "In that regard, improving the timeliness and quality of decision making, at all levels of the organization, is a key outcome."

In 2022, Dante Volpe, Faradyne's president, began exploring what the company's first steps towards digitalization would look like. He knew that he wanted to build on the firm's existing automation capabilities using Industry 4.0 solutions, but he wasn't sure where to begin. With this in mind, he reached out to [RIT's Industry 4.0 Transition Assistance Program](#).

The Industry 4.0 solution: Digital-readiness roadmapping

For many SMMs, the biggest barrier to Industry 4.0 is knowing where to begin. RIT's Industry 4.0 program was launched to help companies develop custom digital strategies and to offer guidance on taking first steps towards implementation. RIT's unique Industry 4.0 assessment is based on the Singapore Economic Development Board's Smart Industry Readiness Index (SIRI), a globally recognized standard for measuring and enabling digitalization within manufacturing.

Faradyne's digital-readiness assessment was completed and the results were used to define an Industry 4.0 roadmap that the firm could follow to move forward on digitalization. The roadmap laid out a set of technology implementation milestones covering the next 3 years. This approach has given Volpe and his team the perspective and information they need to align Industry 4.0 with the firm's wider business development goals.

As Faradyne progresses through the roadmap, its technology, processes, and logistics will gradually transform. Some of the key milestones set out in the plan include the following:

- improved shop-floor data collection and consolidation, as well as analysis of data to drive more informed decision-making
- a production-reporting system to better capture labor allocation
- barcode-scanning to improve work orders and material use
- supplier and customer portals to automate routine communications and improve relationships up and down the supply chain
- the introduction of robotics and "cobots" (collaborative robots) onto the shop floor to do repetitive tasks
- a warehouse management system to digitize transactional data currently captured using pen and paper

These incremental and strategic steps —along with others—will help to shape Faradyne's journey towards digitalization.

"Deploying Industry 4.0 appeared daunting; we were thrilled when we found that RIT was able to help guide us through this process."

Dante Volpe, President of Faradyne Motors LLC



Why create a digital-readiness roadmap?

- **A customized approach:** Every company works differently, leveraging unique strengths to face equally unique challenges. This means a “one size fits all” approach to Industry 4.0 doesn’t work. A customized digital-readiness plan helps a firm to better utilize core competencies while filling in important gaps using Industry 4.0 technologies.
- **The right starting point:** A thorough assessment of a company’s operations shows where the best opportunities for beginning digitalization lie.
- **Industry 4.0—step by step:** A digital-readiness roadmap shows how a firm can achieve Industry 4.0 over time, step by step. Incremental goals and milestones can be selected to reduce implementation risk and set manageable steps with good return on investment.

Approach

The RIT team’s first step was to assess Faradyne operations at the day-to-day level. This hands-on walk-through looked at the company’s manufacturing processes, material and information flows, and its use of digital tools. The onsite assessment was followed by a full-day workshop in which RIT’s team worked with Faradyne stakeholders to determine the firm’s digital maturity. The question-and-answer evaluation (based on the SIRI digital readiness assessment) resulted in scores across 16 different digital-readiness dimensions. These categories included “vertical and horizontal integration,” “product life cycle management”, and “automation, connectivity, and intelligence for the shop floor, enterprise, and facility.”



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The readiness scores, along with Faradyne specific key performance indicator (KPI) importance and financial characteristics, were used to prioritize opportunities that were most likely to deliver business benefits. With the results of this analysis, RIT led a workshop with the company to define an Industry 4.0 roadmap, which included resource and budget planning.

Results and next steps

The first milestone on Faradyne’s Industry 4.0 roadmap is to establish data connectivity across its shop floor. To achieve this, the company will work to identify areas on its production and assembly lines where data-harvesting technologies, like sensors and edge devices, could be installed. These would capture data and feed it into a global, unified information system. The ultimate goal of this effort is to feed the data into analytics and visualization tools to improve the speed and quality of decisions and drive improvements in product quality and operational efficiency.

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For more information please contact us:

☎ 585-475-4210

@ centerofexcellence@rit.edu

🌐 rit.edu/advancedmanufacturing

🏠 190 Lomb Memorial Drive
Rochester, NY 14623

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