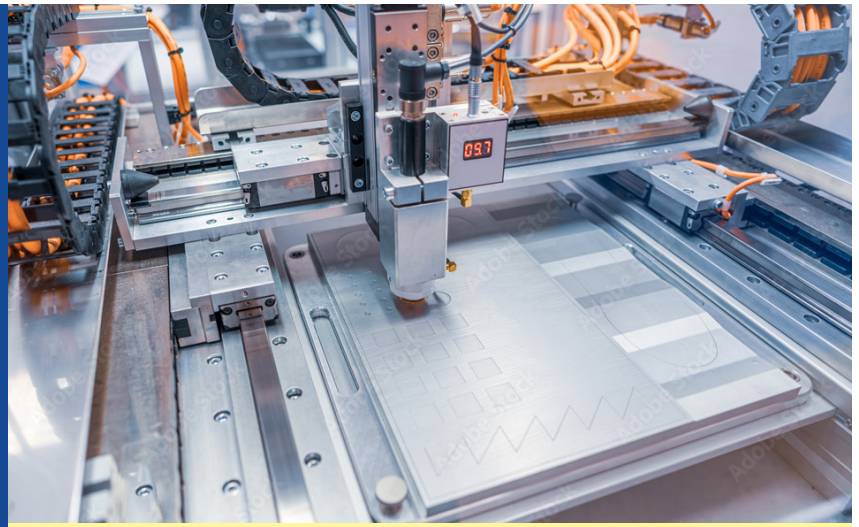




TAUBER INSTITUTE
FOR GLOBAL OPERATIONS
UNIVERSITY OF MICHIGAN

Developing the IdX Training Pathway



Founded in 1911, Whirlpool Corporation, headquartered in Benton Township, MI, near Benton Harbor and St. Joseph, is the largest appliance manufacturer in North America, Latin America and Europe, and the largest Western appliance manufacturing company in Asia. The company, which has 69,000 employees and operates 54 manufacturing and technology research centers, generated approximately \$22 billion in revenue in 2021.

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Whirlpool Corporation's GAME (Global Advanced Manufacturing Engineering) team is tasked with creating new manufacturing systems to deliver winning products for consumers. Through digital transformation, it has been able to establish foundational technologies, build production intelligence, and help deliver new and innovative products for a digital world.

Whirlpool's GAME team identified Industrial Digital Transformation (IdX) as a key strategic initiative to drive forward its manufacturing processes globally. As part of IdX, Whirlpool is introducing new technology and collecting new data.

In order to fully utilize the new technologies, the GAME team wanted to make sure the company's workforce is capable and prepared. In order to achieve this, Whirlpool was looking for a framework to introduce training to achieve the full potential of the IdX program.

To deal with this issue, Whirlpool brought in a student team from the Tauber Institute for Global Operations at the University of Michigan, consisting of **Margaret Kirk**, working on a Master of Business Administration (MBA) degree, and **Matthew Rodeman**, a member of the Engineering Global Leadership Honors (EGL) program, which leads to BSE and MSE in Electrical Engineering degrees.

"The real innovative strategy for this project was the identification of different training strata within the organization and a change in the timing requirements for that training. It resulted in a defined training plan that can be easily applied to any project, not just a technology application."

- Michael Cukier – Principal Engineer, Global Advanced Manufacturing - Digital Transformation & MFG Innovation, Whirlpool Corporation

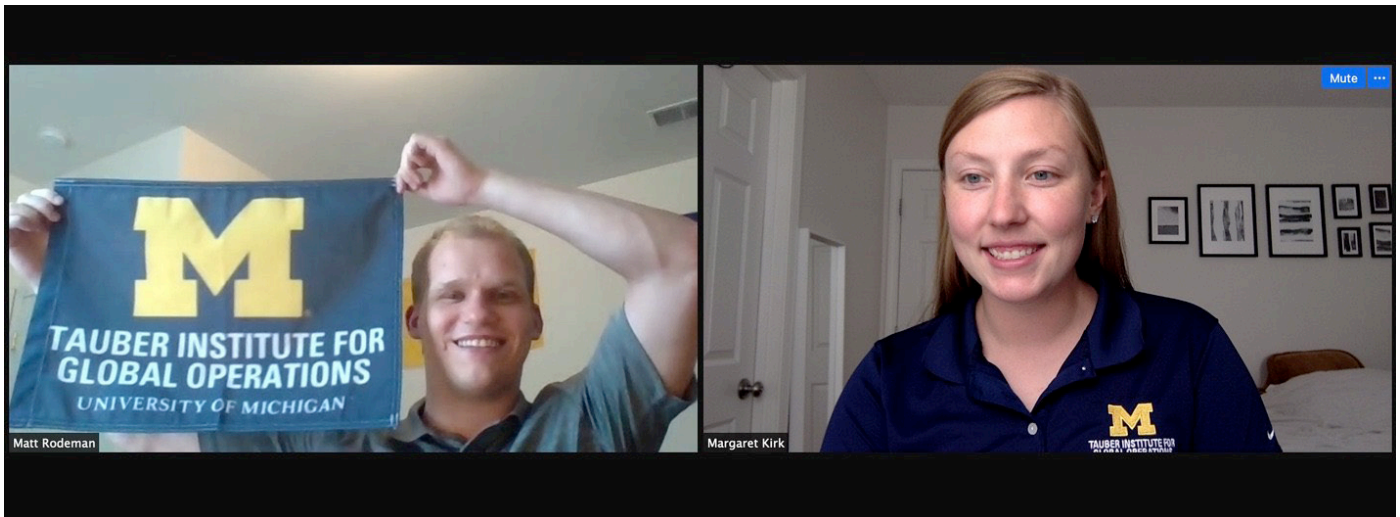
"The 14.0 initiative within Whirlpool Manufacturing is not solely focused on new technology," said Michael Cukier, principal engineer for global advanced manufacturing, digital transformation and manufacturing innovation. "It also includes moving the manufacturing



Dr. M.S. Krishnan
Ross School of Business



Dr. Fred Terry
College of Engineering



culture more towards a data and technology mindset. One of the key items that had been identified as a shortcoming was employee education and training, including when launching a new technology project.”

“This project was intended to identify the root cause of this problem and to construct a core training framework that could be applied to any new technology program. The primary drivers were to improve the speed and success of technical project launches, and to help shift the manufacturing culture.”

“Timing and accessibility during COVID-19 was a challenge,” he said. “An in-plant workshop was able to be scheduled and the Tauber team hosted multiple video workshops to supplement the face-to-face activities.”

In order to define the training framework, the Tauber team started by looking for external benchmarks for training programs related to digital transformation at other organizations. The team also interviewed individuals across the Whirlpool organization, from assembly operators at the Clyde, OH manufacturing site to managers on the corporate side in the European region.

Based on this research and feedback, the Tauber team was able to create a general training framework with the following sections: business case, defining stakeholders, building a timeline, developing training content, implementing training, and incorporating into World Class Manufacturing (WCM).

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in the timing requirements for that training,” said Cukier. “It resulted in a defined training plan that can be easily applied to any project, not just a technology application.”

“The team identified key groups of people throughout the manufacturing organization that required different training plans at different times throughout the project lifecycle,” he continued. “Understanding these elements early in the project will allow Whirlpool to better utilize training resources, reduce wasted time, and improve the launch timing for new projects.”

The training framework is delivered through a website in order to be easily accessible and agile as the framework is implemented and refined through experience. The framework provides guidance and resources within each of the sections and provides examples, where available, from the pilot the Tauber team was able to execute at the Clyde site. The team also outlined a plan to move forward and immediately implement this framework globally to deliver savings.

The Tauber team also defined three value streams that deliver cost savings to Whirlpool through this framework. The first is time savings. Based on research, as well as discussions with the team at

Student Team:

Margaret Kirk – Master of Business Administration

Matthew Rodeman – EGL (BSE & MSE in Electrical Engineering)

Project Sponsors:

Michael Cukier – Principal Engineer, Global Advanced Manufacturing - Digital Transformation & MFG Innovation

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Faculty Advisors:

M.S. Krishnan – Ross School of Business

Fred Terry – College of Engineering



About Tauber Team Projects

The 2021 Tauber Team Projects resulted in \$989 million in savings according to sponsoring company calculations, an average of \$43 million per project over 3 years.

Each two to three-person Tauber Team consists of graduate engineering and/or graduate business students. Along with receiving high-level corporate support from the sponsoring company, each team is advised by a College of Engineering and a Ross School of Business faculty member and overseen by a Tauber Institute Co-Director. The projects begin on-site in May and continue for 14 weeks. Students present the results of their projects and compete for over \$40,000 in scholarships at the U-M Tauber Institute's annual Spotlight! Team Project Showcase and Scholarship event, held each September in Ann Arbor, Michigan. Spotlight! provides outstanding opportunities for students and corporate partners to establish relationships while exploring innovations in operations and manufacturing.

To learn more about the Tauber Institute for Global Operations, visit tauber.umich.edu or contact us at 734-647-1333.

Whirlpool, the Tauber team was able to determine that by using this framework, there can be a savings of 30 percent of a project team's time. At Whirlpool, for IdX projects alone, this represents a savings of approximately \$1.9 million in 2021 alone.

The second value stream is project effectiveness. The Tauber team found that there is a potential for a 30 percent increase in project effectiveness by using this framework. This translates to a potential savings of \$3 to \$4.5 million over the next three years.

The last value stream is employee engagement. While this does not have a direct monetary impact, the potential savings are vast. It has been shown that increased engagement can improve retention as well as boost overall morale, leading to increased productivity and reducing the cost of recruiting. The overall potential savings in the next three years are between \$9 and \$11.5 million.

"A small scale pilot was conducted at the Clyde manufacturing plant," said Cukier. "The pilot itself was held later in the project cycle than the team would have recommended but was still applicable. It was conducted over the course of two days and provided relevant insights for both the training leads at the plant and the Tauber team to make improvements to the training framework they developed.

"The Tauber project has been converted to a web-based set of tools that any project engineer can access internally. A larger scale trial is in process at one of the manufacturing plants."

Kirk said, "One of the most exciting parts of this project was learning about the new technology being used at the manufacturing sites and seeing people in the plant excited about the future of Whirlpool. We were able to connect with lots of different people and gain momentum and interest around training and upskilling to bring Whirlpool into the future of manufacturing."

