

CSI Membership Agreement Overview

Inspired by discussions with executives at Rockwell Automation and Microsoft in 2016 and 2017 related to the Internet of Things (“*IoT*”), the University of Wisconsin-Milwaukee (“*UWM*”) established the Connected Systems Institute (CSI) with the intent that it become an internationally recognized, multidisciplinary, collaborative institute – a collaboration centered at UWM and including industry partners and other academic institutions.

CSI Mission

The focus of the CSI is the Industrial Internet of Things- (IIoT), the network of physical systems including processes, actuators, sensors and data network, and hyperphysical systems including software, data analytics platform, and data storage. Bi-directional data transfer and communication between the physical and the hyperphysical systems creates unlimited potential to improve overall system efficiency and reduce costs. In a connected systems, the IIoT integrates business enterprise functions including Manufacturing Execution system (MES), Enterprise Resource Planning (ERP), supply chain management, Human Resources (HR), and customer relations to create a single communication link from suppliers to customers. This connected system provides opportunities for real-time optimization of factory floor production by sensing out of tolerance conditions, including the production of too much or too little inventory to supply the demands from customers, enabling total system optimization by eliminating waste and unplanned downtime. The CSI operates a cutting-edge, campus-wide entity at UWM with a sophisticated facility that provides the physical infrastructure to conduct fundamental and applied research, provide education opportunities for all types of students and businesses, and offer programs to develop talent, expertise, and solutions to lead companies to greater productivity and job creation through the use of IIoT technologies and applications. Members who participate in the CSI will benefit in many ways, including:

- The opportunity to conduct advanced and applied research in the areas of IIoT, with academic researchers in a manufacturing lab rich with tools common to the manufacturing industry, fully integrated.
- Access to the data generated from the test beds which will reside in a cloud and which is available for research and education
- Connecting member companies to networks of partners and fellow travelers who can help solve challenging IIoT problems and finally
- Connecting to the IIoT, as an on-ramp for small and medium sized businesses who may not have the resources to attract the talent necessary to deploy advanced technologies.

The ultimate goal of the CSI is to create the workforce of the future, accelerating the adoption of IIoT by enabling and equipping a talent pipeline with knowledge required to adopt the new digital technologies and transform business by exploiting connected system capabilities. This will accelerate their adoption of IIoT by reducing the cost and risk for the member companies to adopt the new digital technologies and thereby, transform their business.

As the CSI expands, future points of focus could include smart cities, transportation, water technologies, energy, healthcare, financial services, agriculture, and education, as prioritized by the Steering Committee. It is also anticipated that the CSI will expand to include or otherwise engage with start-ups or other emerging entities/organizations.

Vision

CSI is an internationally recognized, multidisciplinary R&D facility based at UWM. Its primary focus is on academic programming, workforce training and advanced research, focused on the Manufacturing domain. The Institute’s vision is to serve as a trusted resource for technology, research, collaboration, education, thought leadership, and industrial community.

Value Proposition

CSI serves as a center of excellence for a global community of practitioners that are transforming manufacturing processes using advanced digital technologies. The Institute brings together the best of industry and academia to deliver education and research opportunities focused on the unique needs of advanced manufacturing, and the challenges of transforming the internal culture that facilitates the IIOT evolution. Connecting to talent (inclusive of both students and adult learners) with expertise in factory automation, connecting and collecting data, analysis of the data using commonly applied suites and products

KEY DIFFERENTIATING PRINCIPLES

The CSI labs will be operated and organized based on five key principles that will differentiate the CSI from all other institutes while providing key non-duplicative partnering opportunities, including:

- Top-to-bottom Industrial IOT system, configured to operate the fully functional Vial Fill Cell equipment, consisting of fully integrated manufacturing systems from industry's leading tool providers. This integration is designed to enable the study and research of IIoT functionalities and key application processes as whole solutions, functioning real-time.
- Data generated from this test bed equipment in the lab is stored and available for research by Members
- Academic and Workforce Training focus on integrating both soft skills and advanced integration of IIOT tools, focused on the manufacturing domain to educate student and adult learners in the application of tools they will work with in real world applications.
- Conduct research projects in collaboration with Founding and Sustaining Members in pursuit of solutions that answer the real needs of business. Papers published in the pursuit of this research are available to members only. These projects are generally assumed to explore a variety of data at any level of sensing and control, transforming information-to-knowledge, visualization, and machine learning opportunities.
- Access to our experts – teams involved in implementing our Industrial IOT and multiple solutions, including teams of students who participated in the process.
- Access to our learners – CSI attracts people who are interested in exploring technical concepts collectively known as the Industrial IOT toolset – AI, integrated robotic systems, autonomous processing.

Add a button here to bring up a “please contact me” form, same as those we are offering in other areas on the website. The form goes to the CSI mail box. It include their name and contact info and asks for a short description of their interest.