INDUSTRY 4.0
Technologies revolutionizing the metal casting industry!

SHAPING THE FUTURE OF AN INDUSTRY

Digitization, rising production costs, shortage of skilled workers, and supply chain issues are common manufacturing concerns. The foundry and the metal casting industries are no exception. Foundries across the nation are under constant pressure to improve processes and overcome the challenges of this segment. The demands for accuracy and precision, as well as notable increases in the quantities, product range, and components, will continue to rise.

Solutions & Opportunities
It is crucial to address these issues and meet the demands. The obvious solution is to incorporate Industry 4.0 technologies. By utilizing these new technologies and incorporating automation, foundries nationwide can move towards a sustainable and profitable future. Change, however, is not always easy or affordable.

The Partnership
The Defense Logistics Agency (DLA) and the National Center for Defense Manufacturing and Machining (NCDMM), acknowledge the situation and recognize the challenges and obstacles. By joining forces with two universities, the University of Northern Iowa (UNI) and Youngstown State University (YSU), foundries will be able to increase the adoption of Industry 4.0. Our measures determine how an intelligent factory fits into core operations, finance, sales, and marketing by utilizing research, commercialization, and new workforce training solutions.

Advantages & Results
This Industry 4.0 Foundry Partnership aims to provide American-based foundries with the competitive lead in technology while optimizing productivity, output, and product quality, catapulting American-based foundries forward. These technological innovations create opportunities that help build a dynamic digital ecosystem. Several notable advantages are cost reduction, shortened deadlines, and deploy excellence in quality and customer satisfaction for generations to come.

This unique blend of applied research in Industry 4.0 technologies and direct assistance with business operations provide an opportunity for supply chain companies to fortify the nation’s casting defense supply chain.

states Randy Pilkington, BCS Executive Director at UNI.
TAKING FOUNDRIES TO THE NEXT LEVEL

INDUSTRY 4.0
Technologies revolutionizing the metal casting industry!

UNI BCS – Revolutionizing Metal Casting
Two key institutions at the University of Northern Iowa (UNI) under the Business & Community Services (BCS) umbrella play a significant role in the Industry 4.0 Foundry Partnership. The Center for Business Growth & Innovation (CBGI) is the first. The Metal Casting and the Foundry 4.0 Centers make up the second group. Together, they give foundries the competitive lead needed to push technology, productivity, and quality forward.

Center for Business Growth & Innovation
CBGI works to increase successful and sustainable adoptions of Industry 4.0, connecting foundries across the country to the most innovative practices. The experts strive to research, analyze and develop strategies for commercialization and create successful training solutions that impact a business and its workforce. Fitting Intelligent 4.0 factory elements into core business operations, such as finance, sales, and supply chains, will be an elemental success metric for growth.

UNI Foundry 4.0 & Metal Casting Centers
The UNI MCC located on campus is a nationally recognized leader in foundry research, applied technology, and technical business assistance. For more than 30 years, the MCC has changed the metal casting industry by linking university-grade analysis, resources, and students to businesses and foundries in the private sector.

The Cedar Valley TechWorks in Waterloo, Iowa houses the UNI Foundry 4.0 Center. Experts explore additive & advanced manufacturing, automation, robotics, IoT, and Smart Manufacturing using state-of-the-art equipment, including a 3-D printer.

Both UNI Centers enable foundries to optimize manufacturing processes while incorporating Industry 4.0 technologies. These improvements contribute to the sustainability and resiliency of the casting industrial supply chain by:

- Improving worker safety with automation of repetitive and potentially dangerous tasks
- Providing advanced technology to expand production capabilities
- Providing timely process information through IoT
- Decreasing the time required to produce cast parts
- Increasing speed and efficiency of casting production

This project is sponsored by the Defense Logistics Agency Information Operations, J68, Research & Development, Ft. Belvoir, VA, and the DLA Troop Support, Philadelphia, PA.