Industry
Manufacturing

Technologies
Data Modeling
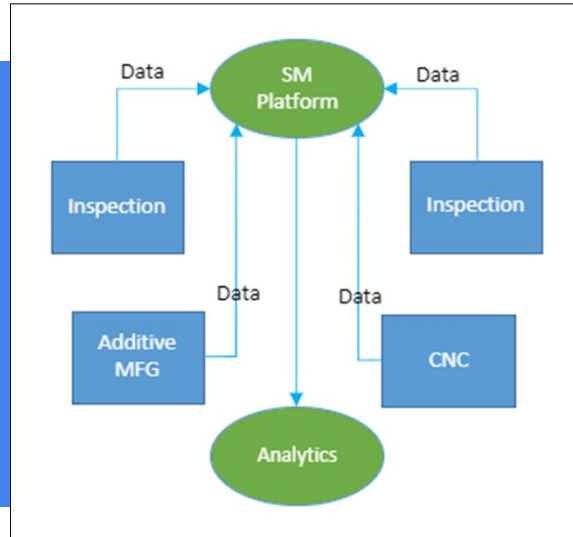Data Analytics

Solutions
Energy Efficiency

PROJECT CASE STUDY

Introducing Small Manufacturers to Smart Manufacturing

PROJECT LEAD

Connecticut Center for Advanced Technology

PROJECT TEAM

N/A

PROJECT OBJECTIVE

To accelerate the democratization of smart manufacturing (SM), this project will demonstrate to small-medium manufacturers (SMMs) a basic, introductory methodology to use and apply SM technologies.

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Connecticut Center for Advanced Technology Delivers Smart Manufacturing Training

BENEFITS TO OUR NATION

Introducing Smart Manufacturing tools and techniques to manufacturers will provide them with a path toward modernizing their operations, streamlining processes, and improving overall efficiency. The adoption of smart manufacturing technologies fosters innovation, encourages investment, and strengthens the technological backbone of the nation's industrial sector. Empowering Small and Medium-Sized Enterprises with these advanced tools ensures that they remain agile, resilient, and well-integrated into the broader manufacturing landscape, contributing to the economic vitality and sustainability of the nation.

BENEFITS TO INDUSTRY

Demonstrating smart manufacturing technology to small and medium-sized manufacturers (SMEs) is pivotal for catalyzing transformative benefits across the industry. By showcasing the practical implementation of advanced technologies like IoT, automation, and data analytics, small manufacturers learn to optimize their production processes, improve product quality, and enhance productivity. After first movers incorporate these novel manufacturing practices, other companies follow their lead and the improvements eventually disseminate across the entire industry.

PROJECT DESCRIPTION

TECHNICAL APPROACH

Devise a basic real-world workflow for CNC machining that includes manufacturing process data acquisition and utilizes the Smart Manufacturing Innovation Platform (SMIP) for analytics.

1. Demonstrate SM technologies and platform – measure energy consumption during CNC machining and digitally connect the quality inspection information using the SMIP.
2. Host in-person and web-based workshops to demonstrate the smart manufacturing workflow to SMMs and to incumbent and future workforce.
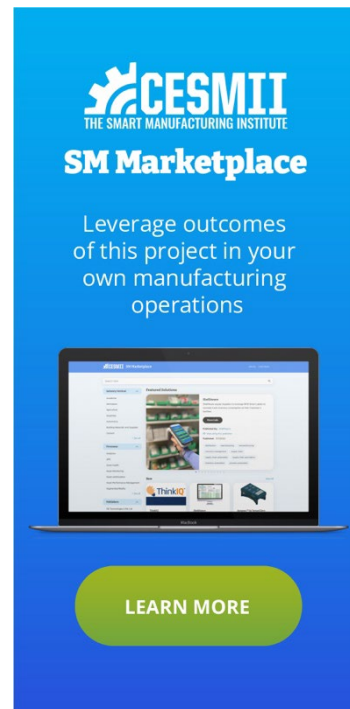
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ACCOMPLISHMENTS

- Integrated OPC UA server into equipment network.
- Established workflows for the following:
  - CNC machining
  - Part inspection
  - Additive manufacturing
- Developed CNC Machine and Additive Manufacturing Machine SM Profiles.
- Analyzed manufacturing process data on the Smart Manufacturing Innovation Platform.
- Demonstrated SM Technology to 20 Small and Medium Sized Manufacturers.

DELIVERABLES

- Not reported.

REUSABLE OUTCOMES / SM MARKETPLACE

- CNC Machine SM profile
- Additive Manufacturing Machine SM profile

PROJECT DETAIL
Budget Period: BP4 – BP5
Submission Date: 1/14/2022
Sub-Award (contract) Number:
4550 G YA221
SOPO: 2421

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