

Research Center for Digital Adaptive Manufacturing for Industry4.0



A strategic collaboration hub for needs-driven research in smart industries.

Leading towards smarter, more adaptive, sustainable and resilient factories and supply chains through digitalization based on a human-centric approach.

The vision of DAMI4.0 is to leverage the potential of digitalization for making production processes smarter, adaptive to the worker, more sustainable and resilient.

We believe that we can create impact through a combination of our excellent research, our strong and innovative industry and our regional support.

We want to make factories of the future smart, adaptive to the worker and more sustainable. We combine lean production principles with additive/lean manufacturing, engineering best practices and digitalization related competencies. We build upon key enabling technologies from AI and Machine Learning, 5G and Real-time Networks, Cloud and Edge Compute, Internet of Things and Security. We help transform internal business organization to fully leverage the potential of digitalization related technologies. We help creating new business models exploiting the agility and flexibility of digitalization.

Who are we? DAMI4.0 is an initiative of Karlstad University and supported by Region Värmland. Joined by the cluster organisations The Paper Province, luC Stål & Verkstad and Compare, we are looking for industry & public sector partners. As partners, we will work actively together on projects and directed working groups. You will have direct access to a network of researchers across different disciplines and to unique collaborative events.



Knowledge transfer and dissemination

DAMI4.0 will create a strategic partnership between KAU's research base and a diverse and engaged group of stakeholders in the public and private sectors. We aim to organize several targeted activities to disseminate research results and facilitate innovation, networking and training:

- Innovation seminars & workshops
- Public outreach and research publications
- Industry & Academic working groups and student (thesis) co-supervision
- Life-Long Learning for industry & business groups
- Website and partner newsletter

What will DAMI4.0 do?

Quality Higher Education

DAMI4.0 partners teach about 250 students in different aspects of SmartIndustry from Bachelor to PhD level. DAMI4.0 will strengthen KAU's educational programmes in the area and create an industry connection for next generation of engineers and specialists working in areas related to SmartIndustry.

Activities will include:

- Thesis projects at Bachelor and Master level defined together with industry
- Doctoral student network
- Industry PhD students

Excellent research

Research projects in close collaboration between academia and industry, combining production engineering and materials know-how with Key Enabling Technologies from digitalization including Artificial Intelligence and Machine Learning, Big Data Analytics, Optimization Techniques, 5G and Real-time Networks, Cloud and Edge Computing, Security and Safety.

Application areas include:

- Smart Forestry-based Bioeconomy
- Smart Advanced materials characterization, Processing and manufacturing
- Smart Energy Solutions (Renewables, SmartGrid)
- Smart Chemicals and Drug testing

Research examples include:

- AI and Optimization for energy efficiency, renewables, storage and autonomy (Smart EnergyGrid)
- AI for Prediction of Supply and Demand
- AI and Process Optimization for Quality Control and Zero Defect Manufacturing
- AI for New Materials Design, additive manufacturing and characterization of advanced materials, component design and topological optimization
- AI Algorithm Engineering and Testing
- Digital Twin based Process Control and Optimization
- Industrial IoT System Testing and Optimization
- Big Data Analytics for SmartIndustry use cases
- Robust and Resilient Supply Chains
- Sustainable product and production development
- Societal, organizational, human aspects of digital transformation
- Services and Robust Value Chains through Digitalization

DAMI4.0 aims to support Swedish stakeholders in their SmartIndustry transformation by providing excellent, needs-driven research, and by creating a platform for knowledge transfer, education and career building.

Interested in joining DAMI4.0 or would you like more information? We are looking forward to hearing from you! Contacts below:

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