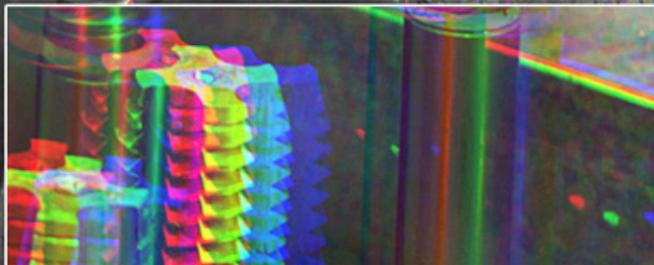


SUCCESS

Stories

INDUSTRY INSIGHTS: Success stories from the production floor



MIT.IC.AT



eit Manufacturing

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Supported by Vienna Business Agency



About “EIT Manufacturing Project Insights”

This curated selection presents best-practice examples from European innovation projects, tailored to small and medium-sized enterprises (SMEs). The respective projects originated from EIT Manufacturing calls to drive the development of crucial manufacturing topics and innovation. The catalogue showcases leading technologies and solutions that deliver immediate value to manufacturing operations and fuel innovation initiatives.

Our objective is to provide a seamless entry point to innovative applications and educational formats accelerating the transfer of knowledge from research and pilot projects into everyday industrial practice. The catalogue is structured into three thematic chapters: Digitalisation, Automation and Education. This way you can quickly navigate to the topics most relevant or interesting to your business.

Each chapter features concrete use cases and technology snapshots that SMEs can adopt or adapt to their specific needs. Implementations range from new business model development to the expansion of digital capabilities. Therefore, this guide empowers you to explore proven proofs of concept and tailor them to your own innovation journey.

By offering these key learnings and practical support, the “EIT Manufacturing Project Insights” catalogue aligns with our efforts to strengthen the European manufacturing industry and fostering the adoption of new technologies and sustainable practices.

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About EIT Manufacturing

EIT Manufacturing is a Knowledge and Innovation Community of the European Institute of Innovation and Technology (EIT), a body of the European Union. With over 200 partners from industry, research and education, it fosters pan-European innovation across the entire manufacturing value chain. Its mission is to develop competitive and sustainable products, processes and services through close collaboration. EIT Manufacturing East, one of six regional offices based in the Technology Center Seestadt in Vienna, connects stakeholders from Austria, Croatia, Czechia, Hungary, Serbia, Slovakia and Slovenia. It is supported by the Austrian Federal Ministry for Innovation, Mobility and Infrastructure (BMIMI), the Federal Ministry for Economy, Energy and Tourism (BMWET) and the Austrian Research Promotion Agency (FFG).

About MIT.IC.AT

MIT.IC.AT (Manufacturing Innovation Technology InterConnect Austria) is a pilot project of EIT Manufacturing East aimed at strengthening the innovation capacity of Austria's manufacturing industry and its service providers. Funded by BMIMI and BMWET, MIT.IC.AT integrates SMEs and startups into EIT Manufacturing's programmes and initiatives. By enhancing knowledge and technology transfer along the entire value chain, the project seeks to boost the competitiveness and sustainability of the Austrian manufacturing ecosystem.

Impressum

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Pick-a-Future

Next generation fresh fish
picking system and special
quality control



Pick-a-Future provides a human-robot collaboration solution for a quality checking and picking process for retail manufacturing. It combines practical challenges that are tackled by several technical innovations.

The AI-based robot picking system uses 3D scanning and localisation combined with a new gripper that was developed to handle flexible and slippery goods without damaging them.

Moreover, the system uses optical hyperspectral imaging in the near-infrared region, which enables the identification of organic molecules via absorption spectroscopy for quality control.

The overall integration aims to be used in the food industry and focuses on fish manipulation and inspection of diverse sizes, shapes, appearance and deformability of the handled goods. Particularly food industry companies are welcome to scale up the solution in possible post-projects.



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AMHealthyFuture

European Additive Manufacturing training programme and challenge for primary school teachers and pupils



Gregory Johnston- stock.adobe.com

Additive manufacturing (AM) leaders in Europe are facing difficulties in recruiting talents and re/up-skilling will not be sufficient to meet growing demand. The AMHealthyFuture consortium takes a long-term approach by targeting children at an early age (8-10 years old), focusing on populations less represented in manufacturing, i.e. girls and people who grew up in socially disadvantaged areas.

The project invests in the next generation through a combination of 3D-printing training for primary school teachers and design thinking challenges for pupils. By bridging 3D-printing in the classroom, primary school teachers gain confidence in using manufacturing technology and discussing it with their pupils. Children gradually learn how to operate manufacturing technology to solve problems and improve well-being in their local community. Embedding both printers and key skills in the classroom setting supports medium and long-term impact in educational settings.



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2023

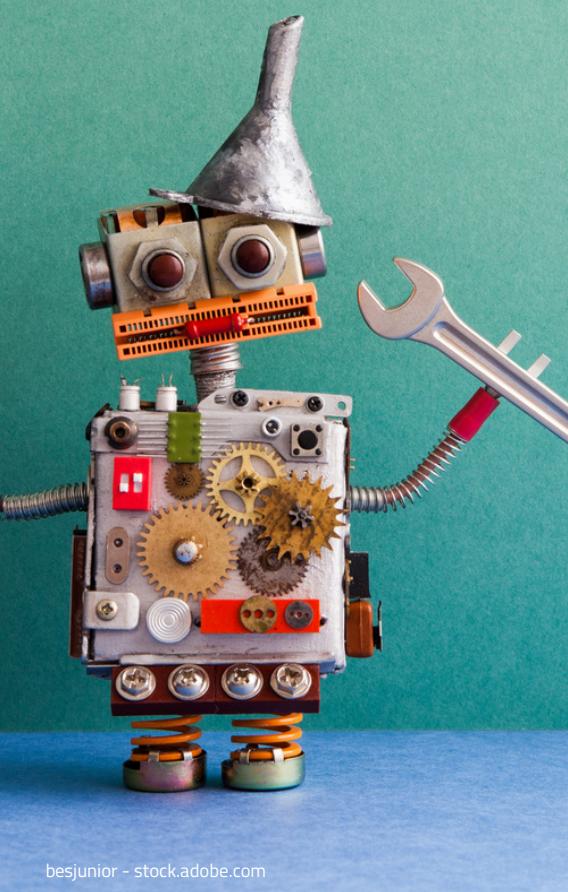
ARMM

Inspection and repair of machines
with a small toolkit

Inspecting and repairing machinery necessitates an in-depth understanding of their functionality, architecture and potential failure points, along with the implementation of suitable interventions.

ARMM provides an advanced maintenance support toolkit that tracks machine performance, identifies faults, recommends corrective actions and delivers detailed repair instructions.

This toolkit features a machine health assessment module, remote monitoring capabilities, augmented reality (AR) interfaces for on-site assistance and a data collection module for the integration of machines, components and operator interfaces.



besjunior - stock.adobe.com



Automation

Cryo-MQL

Transitioning to a waste-free production: international cryogenic + MQL machining activity



High-value manufacturers looking for a competitive machining advantage need better cooling and lubrication that does not require substantial machine tool refits.

With CRYO-MQL, end-users get state-of-the art (i) liquid nitrogen (LN₂) and (ii) liquid carbon dioxide (LCO₂) as a machining coolant – combined with solutions to deliver minimum-quantity lubrication (MQL) to a cutting zone for applications demanding higher productivity (faster material removal, longer tool life) and enhanced quality.

Developed through extensive fundamental research, LN₂+MQL and CO₂+MQL bring patented cooling and lubrication methods into real-world applications, advancing solutions from Technology-readiness level (TRL) 6 to TRL 8. Proven through pilot projects in the medical, aerospace and steel manufacturing sectors, the Key Performance Indicators (KPIs) achieved – along with the innovative “technology-integration” approaches offered by CRYO-MQL – empower end-users to adopt a technology once considered out of reach. As a result, implementing CRYO-MQL in existing production plants is now more accessible, efficient and cost-effective than ever before.

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SANDVIK

HSTec
HIGH SPEED TECHNIQUE

ACCU-SVENSKA AB
Minimum Quantity Lubrication Systems



UDDEHOLM
a voestalpine company

University of Ljubljana



Automation

SOFOCLES

Smart and flexible clamping
solutions for sealing



SOFOCLES (smart and flexible clamping solutions of sealing) develops a flexible, reconfigurable and innovative collaborative robotic system for handling and clamping large components. The production cell consists of two robotic arms that are collaborating with a human operator. The solution enables the handling of parts with over 150 kilogramme of weight. This payload goes far beyond the current state of the art (<15kg). Moreover, a digital twin of the cell ensures safe and efficient interaction.

Currently, different use cases are being integrated, e.g. sealing, welding and WAAM (wire arc additive manufacturing). The pilot integration aims to be used in the aeronautical industry. An integration of further processes such as drilling and sanding is possible. Companies from industries such as energy, construction, transport, etc. are welcome to contact us for possible follow-up projects.



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Add Manu

Additive Manufacturing Teaching Factory



ProstoSvet - stock.adobe.com

The Add Manu (Additive Manufacturing Teaching Factory) project consortium provided hands-on learning materials for teaching additive manufacturing in higher academic and industrial education. Thanks to the diverse composition of the consortia, the authors created broad content covering design, process and mechanics. The course focuses on 3D printing of ceramics, polymer and composite material sand and Vat Photopolymerisation.

In contrast to other courses available on the market, Add Manu provides manufacturer-independent content, which is practical and was developed together with users from more than 18 companies in five European cities and evaluated by 70 study participants from partner universities.



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CaptNSee

CAPTURE aNd foStEr additive manufacturing
knowlEdge for luxury industry



stokkete - stock.adobe.com

CaptNSee is a training programme dedicated to professionals who want to enhance their expertise in the use of additive manufacturing technologies. The programme has focused on two core components of the additive manufacturing (AM) value chain that have not received much attention: early design stages in AM and the Manufacturing Execution Systems (MES) stage, which allows real-time control of processed parts.

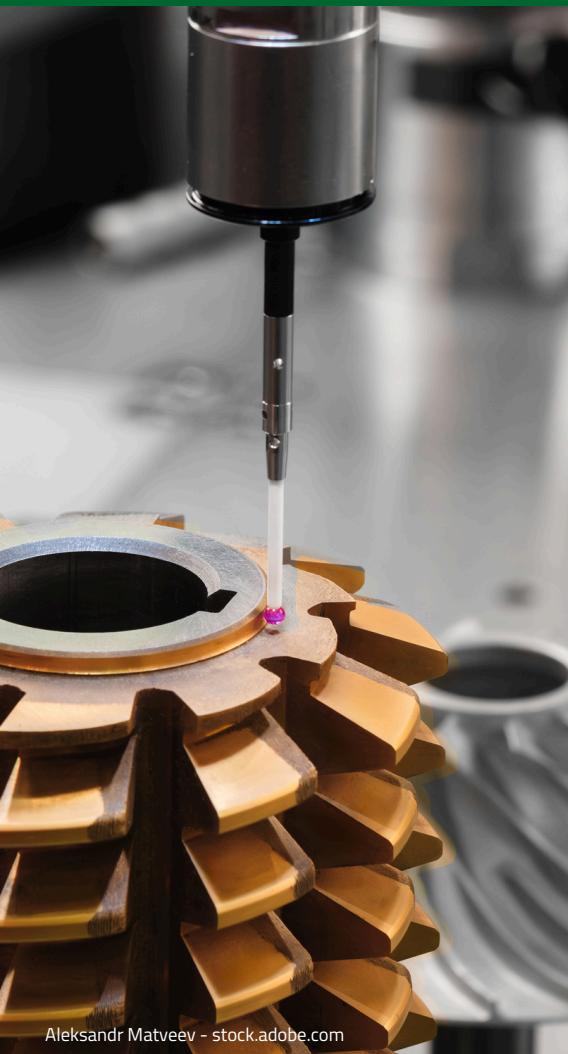
Building on the expertise of its consortium members, the project has aimed to initiate a dynamic shift in the method of work, leading to more creative, flexible and smarter AM. One of the targeted sectors has been the luxury industry, which is experiencing strong growth and features high value-added production that requires enhanced creativity and high precision.



2022

InToFlex

Control of milling process via
real-time measurements



Aleksandr Matveev - stock.adobe.com

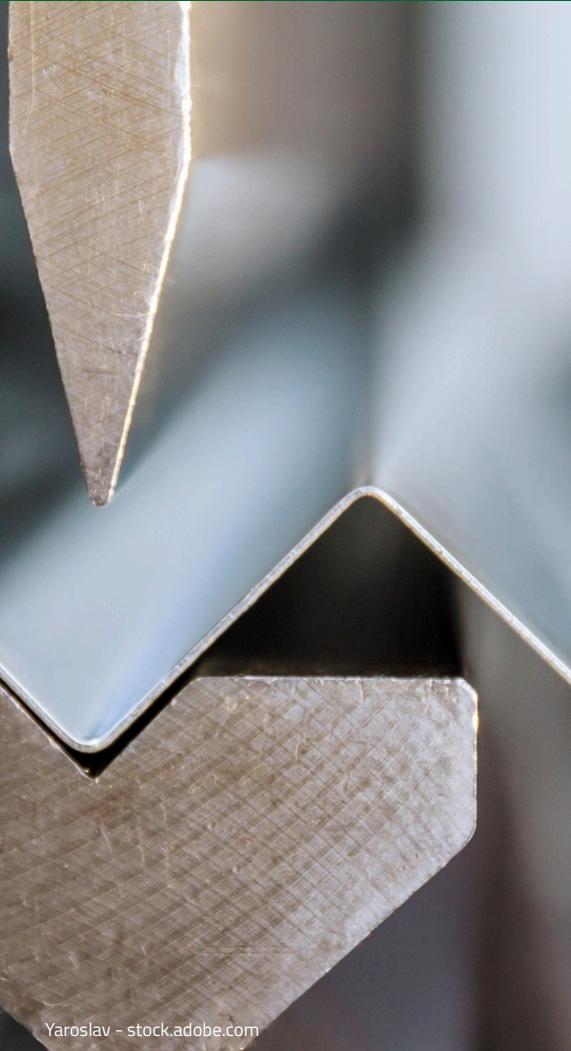
InToFlex is a continuation of the Mach4ZeroDefect projects, enhancing a sensory milling head in combination with a special sensory tool holder. This project aims for miniaturisation and integration into smaller tools compared to Mach4ZeroDefect. The targeted milling head dimension (e.g. diameter 125 mm) will be used by customers of Walter Tools. MyTooliT takes care of the commercialisation of the integrated electronics.

Measurements of temperature and cutting force directly at individual cutting teeth of the milling head to detect deterioration on work piece or cutting edge. Subsequently, manufacturing parameters can be adjusted and fed into data-based machine optimisation.



OPTIBEND

Zero defect manfuacturing of home appliances bending work pieces



Yaroslav - stock.adobe.com

The consortium addressed the problem of controlling the material's elastic recovery (also known as spring-back) in a bending machine due to its mechanical characteristics and thickness variation.

The outcome of this project is the improvement of a machine's performance through process monitoring, data acquisition and advanced control strategies so that the workpieces' quality and process robustness is increased, subsequently assuring zero defect manufacturing. In other words, the Optibend project turned a bending machine into an Industry 4.0 bending machine.

Whirlpool assisted the project as the final user and validator and the production of doors for refrigerators served as a pilot for considering industrial needs related to production and workpiece quality. This solution is currently used in Fagor machines and is also marketed in other industry sectors.



KeyBotics

Displacing intensive manual labour towards human-focused collaborative robots



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Robots collaborating with humans can enable manufacturers to increase performance significantly by improving quality, speed and repeatability and achieving human well-being without replacing human workers. Automated production is currently well-established in structured and predictable environments such as mass production, but it is limited for complex and unpredictable manual operations.

KeyBotics was born from the ambition to decrease the drudgery of work by discharging the operator from repetitive tasks, focusing on complex surface finishing operations such as deburring and polishing. Their solution was to use cobotics as a facilitating tool for these precise, long-lasting manual operations. The versatility of the end effectors will enable the cobot to adapt to many situations. Simultaneously, the operators can focus their actions on controlling and guiding the cobot, while taking benefit from both improved quality of work and productivity.



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ZELD-e

Zero-defect wELDing for e-mobility



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The ZELD-e project aims to reconfigure and update the existing monitoring and control scheme of the welding processes involved in tab-to-tab and tab-to-bus bar joining of battery modules and packs used in BEVs (battery electric vehicles), in order to increase the joint quality, reduce and even eliminate defective parts, optimise equipment's productivity, energy consumption and minimise development time and time-to-market.

The proposed solution/system is based upon a multilevel approach, including the enhancement of the sensorial configurations, the data acquisition (DAQ), and control functionalities located at the edge (shop floor), backed up by a centralised web-based platform with visualisation, quality assessment and data processing/analysis capabilities paired with a long-term control optimisation scheme for supporting the decisions of the operators.



Automation

RoboNuggets

Learning Nuggets for Robots and
Physical Assistance in Manufacturing



RoboNuggets employed an innovative didactical framework for online courses on robotics and physical assistance systems in manufacturing, supporting the educational needs of various target groups. Industry partners and existing learning factories provided use cases from different business units and application areas. The content developed enables the theoretical knowledge to be studied compactly and individually online.

Moreover, due to this individual programme, participants can use the time spent in classes for practical use cases or discussions with experts to gain practical knowledge. The usage of the online learning content reduced the impact of the COVID pandemic on teaching and training in companies and universities in Europe and led to several follow-up projects.

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Automation



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CoCOAS

Human-robot collaboration with AGVs



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Modern production environments in the automotive industry must transition from rigid assembly lines to flexible systems capable of producing various product variants. The objective is to establish a fully transformable production line where machines, products and components are transported autonomously. Current flexibility is constrained by the size, shape and load capacity of the vehicles, necessitating the use of specialised vehicles.

A significant advancement is the networking and collaboration of AGVs (Automated Guided Vehicles), which integrate to create virtual large vehicles. This enhances system performance and facilitates the transportation of larger goods. Unlike existing systems, the AGVs function as intelligent cyber-physical systems.

The project fosters human-robot collaboration through Automated Guided Vehicles (AGVs) equipped with swarm intelligence. Some AGVs manage material replenishment and handling using robotic arms, while others focus on transportation. Enhanced sensor technology bolsters safety, accident prevention and material protection. Target users include manufacturing firms with stringent flexibility demands, particularly within the automotive and mechanical engineering sectors.



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Automation

2021

AMagine

Distribution of additive manufacturing through workshops



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AMagine enhances additive manufacturing (AM) by cultivating a highly skilled workforce throughout the entire value chain. By 2026, more than 2,500 professionals will receive training in workshops, while 1,100 will participate in a freemium-based online course, with certificates available for purchase.

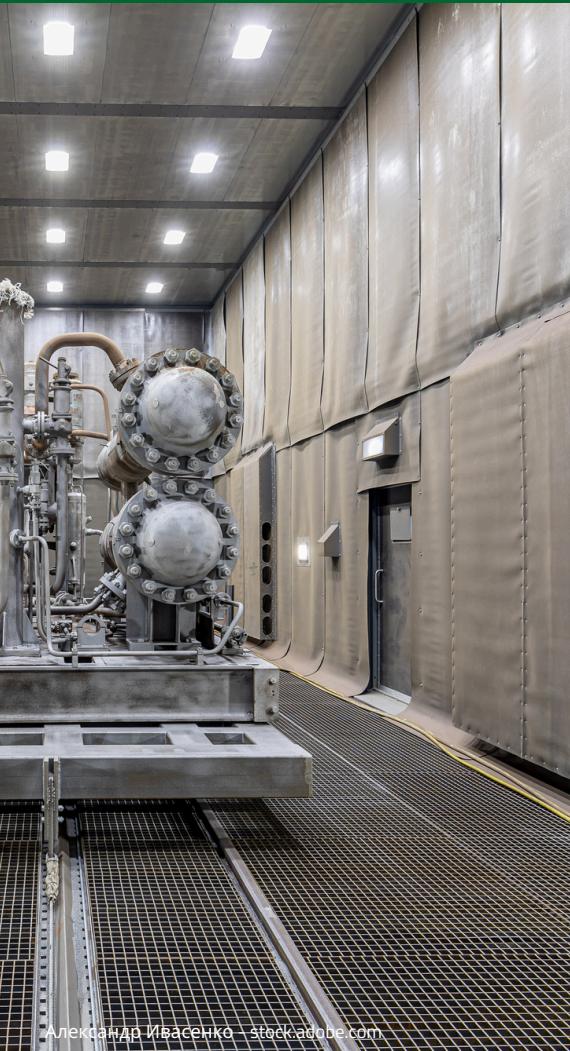
The project develops four 20-minute learning modules and temporarily licenses software for workshops. AMagine facilitates the dissemination of additive manufacturing methods, enhances corporate flexibility and innovation capacity and incorporates additive manufacturing into new value chains.

It bolsters the EIT Manufacturing Master School with industry-relevant educational content and advances EIT Manufacturing's strategic objectives in the domains of qualification, innovation, digitalisation and customer-centric manufacturing.



LABROID

Combining human experience and
AI-supported automation



Александр Ивасенко - stock.adobe.com

LABROID is transforming sandblasting through a collaborative robotic solution that integrates human expertise with AI-driven automation.

Essential elements:

- Alleviation for employees: minimising physical stress in a loud, dusty setting.
- Digital and physical integration: scanning, automated shape recognition, AI-enhanced trajectory planning and haptic human-robot interaction.
- Enhance safety and efficiency: offline preparation, accurate manual adjustments and autonomous processing of comparable components.
- Flexible application: Enhanced strategies for both small and large production series.

LABROID integrates human expertise with intelligent automation, enhancing quality and productivity while elevating worker safety.



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SUPSI

 **AeroSpline**

 **SAFRAN**

MACH4D

Sensor integrated high speed
machining for zero defects



kelifamily - stock.adobe.com

The aim of the activity was to bring a new sensory milling head to market, with the scope of upgrading large scale machining to a high-speed zero-defect process.

The milling head is based on the Sensory Tool Holder, which has been developed by TU Wien together with MyTooliT and Schunk. This development goes beyond the state of the art, integrating vibration and temperature monitoring modules with a specific interface between milling head and tool holder for energy and information transfer in a single tool system that also provides adaptive control of milling process parameters for large scale machining. The milling head is commercialised by Walter tools and MyTooliT in accordance with an user and sales agreement. voestalpine High Performance Metals is acting as an end user for this product, providing a substantial experience in large scale machining. Other markets such as aerospace, energy, etc. contribute to scaling up the solution after the project's maturation.



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Access to markets voestalpine

Improving people's lives through
sustainability



Access to new market opportunities for the startups
Energy and nista:

Challenge:

voestalpine searched for a partner to improve their Value Added Services business by integrating an energy efficiency monitoring and management tool.

Solution:

- Through our Corporate Innovation Challenge, EIT Manufacturing introduced Energy and nista, two startups supported by EIT Manufacturing, to voestalpine.
- With our support, voestalpine went on to select them both to run Proofs of Concept in 2024.

Our impact:

For Energy and nista we provided easy access to market opportunities, enabling them to collaborate with industry players and showcase their potential with great results.

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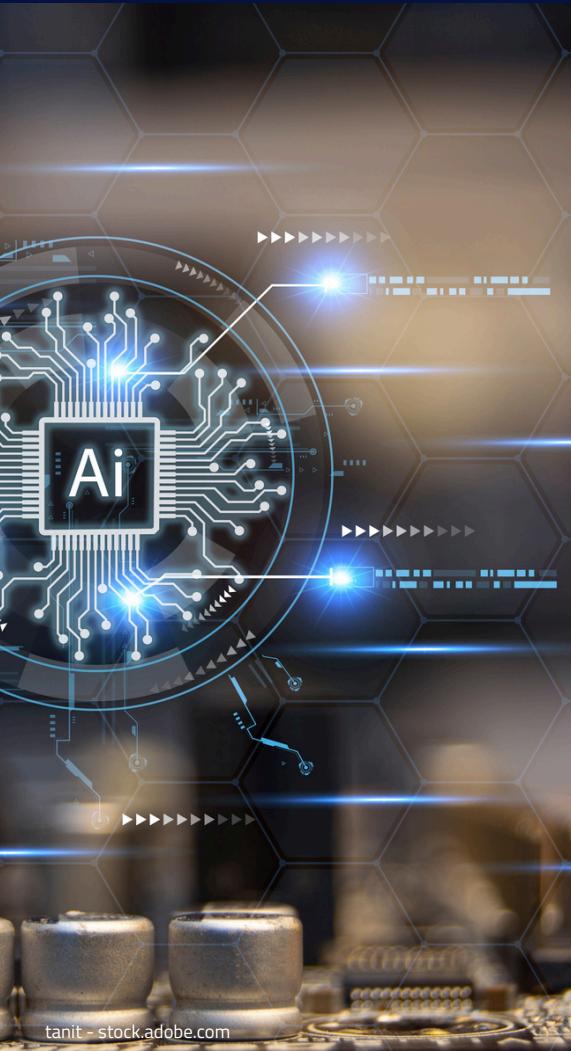
ENERGIECY
ENERGY INTELLIGENCE FOR MANUFACTURING

Automation
Digitalisation

2021

DENKweit

Highly complex image evaluation
easily implemented



As a Fraunhofer spin-off, DENKweit enables easy access to complex technologies. DENKweit specialises in AI-driven image analysis through their VISION AI Hub and pioneering sensor technology, including B-TECH magnetic field measurement technology.

With a focus on simplicity, cost-effectiveness and performance, their platform requires minimal training images and caters to users of all skill levels. The solution is adaptable to various deployment options, including cloud or local integration, and allows for seamless customisation to meet individual needs. Integration into existing production processes is smooth and without interruptions. Users can effortlessly create, improve or change object classes as needed. DENKweit's strategic partnerships ensure the provision of complete solutions, collaborating closely with automation specialists and camera manufacturers.



ManuDataSpa

Manufacturing Data Spaces



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Data sovereignty and industry-specific data spaces are important resources being considered in advanced discussions in many parts of the EU. Using agile methodology as a guide, this project will continue and expand the lighthouse project started in 2020. It will carry on the development of a demonstrator data space platform by building on the basic demo app for decarbonisation/Scope 3 Emissions. Concrete attention will be paid to other EU Data Space activities to ensure fruitful collaboration.

Through an outreach programme and open calls, small minimum viable product applications will drive the requirements of the platform, define additional data models to be supported and store initial data. The partners delivering this activity employ the unique possibilities of EIT Manufacturing to cover a broad spectrum of ecosystem players; ensure consistency with other EU-wide activities; and use the knowledge triangle to combine business, research and education.



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AeroMC2

Digital manufacturing of optimised multimaterial conformal channel solution for thermal management of aeronautic electric propulsion systems



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The AeroMC2 project manufactures the next generation of optimised thermal management solutions for battery modules and high-power density electric motors in electric aircraft propulsion systems. The solution enables dedicated material optimisation for low weight and cost, with high corrosion resistance and structural stiffness, while providing superior heat transfer efficiency and fast response time of 3D panels in a large range of dimensions.

The digital solution is supported by a new and disruptive manufacturing technology that involves the addition of materials allowing full-flexible design: Hybrid Channelling.

The digitalisation of this novel manufacturing process will create a platform for digital value network across Europe and subsequently around the world, for the manufacture of optimised thermal management system to assist the incremental development of electric aircraft propulsion technologies.

Digitalisation



DIG_WORK

Digital Transformation of work



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The DIG_WORK project focused on skills and work organisation requirements for successful digitalisation in manufacturing. The developed course targets HR specialists, production managers and innovation managers. The learning outcome for the participants lies in the understanding of the treats, challenges and opportunities of digital transformation.

The course's focus lies in the understanding of the influence of digital transformation. It covers the influence of data-driven technologies on a firm's business model and how companies are generating economic value, as well as its subsequent impact on the operating model and the shop floor.

The technological deep dive of the courses show use cases of the technology and covers augmented reality (AR), the internet of things (IoT) and artificial intelligence (AI).



2022

Pro-AR

Professional training in Augmented Reality (AR) for shop floor applications



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Augmented Reality (AR) is one of the central technologies driving the trend towards digitalisation in manufacturing. Missing experiences and the high effort in creation content for AR have been major hurdles for bringing AR into the industry. Based on interviews with industrial experts, the consortium created a comprehensive workshop format covering both fundamentals of AR and bringing first hands-on experiences with simple AR instructions.

Using the easy-to-use Augmented Reality Content Management System, learners can quickly create their own AR instructions to foster their understanding of AR and to identify new use-cases.



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AMPLI

Augmented mold for setting and supervision of plastic product manufacturing



The consortium's objective was to develop a system to improve plant productivity by providing workers with real-time knowledge and information to improve decision-making and work procedures. The developed solution uses an augmented reality (AR) tool connected to sensors, machines and inline control devices.

The productivity is increased by reducing time for tuning a work cell, increasing the availability by preventive maintenance, reducing quality issues and improving employee training.

A robust platform was designed that can be used as a customisation starting point for potential industrial customers interested in the usage of an effective and ease of use visualisation tool for various roles at the shop floor.

The project team aimed to realise the new solution on the market, primarily targeting manufacturing companies that are already on their way to digitalisation.



Digitalisation

V-Machina

Integration of VR-based simulation for safe interaction and practice of students and workers with machinery and robots



Parilov - stock.adobe.com

The V-Machina project consortium developed a Virtual Manufacturing Environment (VME) to train and demonstrate a broad spectrum of machinery and tools using VR digital twins. The system provides an affordable platform that is easily accessible and safe. The VR-based training enables single- and multi-user scenarios. The platform also analyses behavioural, physiological aspects during the simulation to ensure users well-being during the tailored virtual experience. Users are enthusiastic and motivated to learn due to the haptic and gamification strategies used.

V-MACHINA contributes to the manufacturing community and, in general, to society by boosting three paradigmatic shifts in education, referred to as LEARNING4ALL, ACCESS4ALL, and FEELING4ALL.



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SUPSI

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TTB
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Flex-BD

Automated system for electric
battery recycling



Great amounts of differently designed and constructed car batteries will need to be recycled in the future. Low quality of manual operations as well as low speed of recycling operations due to non-existence of standardised battery construction shall be tackled. Worker exposure to harmful chemicals, high voltages and heavy loads are further objectives to reduce or eliminate.

Flex-BD is a flexible solution that allows automatic disassembling of battery packs, handles different battery designs and shapes that were built using different manufacturing strategies. The project contributes to enhanced industrialisation of recycling and sustainability of battery value chains and avoid substantial volumes of harmful waste.



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SUPSI

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FESTO



Hydro



COMAU

TXR-ATG

Telemotive Xtended Reality – Augmented Training and Guidance



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Training employees in the industry costs companies millions of Euros each year (€360 billion/year). Trainings require an investment of time by the trainees as well as their trainers; they may require specific equipment, which may in turn require traveling to specific training facilities; the preparation of such trainings requires a lot of time to deliver good results. And even a trained employee may forget details in the beginning.

The project intends to develop tools for creating effective industry trainings utilising Augmented Reality (AR) and evaluate them with real use cases in the industry (e.g. baby care). These tools will then be integrated into the modular XR platform Vuframe® by Vuframe GmbH, so they can be used for the intended as well as other applicable use cases.

The solution will influence the way people learn, train and work in production environments. By reducing abstraction and placing the content in the real-world environment, the time required for learning and the likelihood of incorrect knowledge are reduced.





In this project, the startup SFM Systems got the opportunity to gain experience in two automotive companies, to implement and further develop its product: the shop floor intelligence assistant SIA.

SIA uses machine learning algorithms to give workers action recommendations based on collected data. The system reduces rework time and supports employees in solving problems by identifying and prioritising main areas of errors.

It collects quantitative data of the process and qualitative data from the rework agents, which are subsequently combined and used for taking fast actions.

A model use case was implemented in the Process Learning Factory CiP at TU Darmstadt. It is made available to partnering SMEs, companies and engineering students.

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Digitalisation



InnoVentilator

InnoVentilator propelling innovation
in health care

The COVID-19 pandemic showcased the issues of the health system. A crucial tool here are ventilator systems.

In order to find a solution, the commercialisation partner CarlReiner has been developing one in-house.

The design is purely pneumatic which enables simple and safe operations. It is also easy to manufacture and repair.

Finally, it could be licensed Europe-wide to manufacturers.



Kiattisak - stock.adobe.com

Digitalisation



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▼WILD

CARL REINER

Osakidetza

b+ocruces
bizkaia

UNIKLINIK
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Graz

DigTrafoRIS

The way to go for EIT RIS companies



Manufacturers encounter difficulties in making digitalisation decisions due to the diverse array of tools available, particularly in EIT RIS (Regional Innovation Scheme) countries where numerous smaller enterprises operate. The project conducted a survey on IT systems and processes, analysed the findings and published a report on the current state of digitalisation.

Drawing from commonly utilised systems, an integration blueprint and a digitalisation roadmap for EIT RIS companies were created. Via an open tender, over 20 companies obtained direct digitalisation guidance. This facilitates the evaluation of business processes, the efficient integration of systems and the reduction of costs.

The consulting enhances process optimisation, boosts production efficiency and reduces development times. A comprehensive report encapsulates these findings.

Companies can invest more strategically in digitalisation initiatives, mitigate risks and address deficiencies. This fortifies the entire European supply chain by fostering greater transparency and improved collaboration.



SYDITIL

Optimisation of processes via new technology



The SYDITIL project is focused on developing an innovative technology to support businesses and optimise operations within complex industrial logistics systems.

Its objective is to create a systemic digital twin tool that significantly reduces the time and costs associated with the development and adaptation of these systems.

This tool assists operators in making both operational and strategic decisions while integrating risks from internal and external sources.

The solution is designed for industrial designers and operators of logistics systems responsible for the transportation of goods and the movement of materials and personnel.

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Digitalisation



BIBA


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Industry can do it

 **Systemic**
Intelligence


GUADELOUPE
PORT CARAÏBES
L'Excellence Européenne

TF KnowNet

Growing exchange of industry and research



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The primary objectives include an optimised ICT platform, an expanding network of academic and industrial partners and a comprehensive pilot campaign to validate the programme. A minimum of 15 Teaching Factories (TF) pilots across six countries (Greece, Germany, Spain, Italy, Sweden, Finland) will establish and enhance the network.

The industry acquires access to specialised expertise and innovative solutions tailored to specific challenges. The transfer of knowledge and skills enhances the qualifications of current employees while connecting companies with emerging talent. Challenge-based learning coupled with cutting-edge equipment renders training more practical and appealing.

Students gain from practical industrial projects that enhance their employability. Remote collaboration diminishes barriers to entry and fosters equal opportunities. Decreased travel requirements bolster environmental sustainability. The sharing of best practices fortifies the European manufacturing sector and elevates its competitiveness.



2022

DigiLIT

Lighting up transformation
in manufacturing



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Digitalisation and automation are catalysing change within the manufacturing sector. Effective transformation necessitates professionals equipped with digital competencies. However, although numerous employees possess extensive specialised knowledge, they frequently lack essential digital skills, including coding and computational thinking.

This project implements a practical training programme to address this gap. It targets professionals with hands-on experience who seek to enhance their digital skills. The training is grounded in design thinking and gender-sensitive pedagogy, integrating the learning platforms Robotino and NEPO to provide an optimal educational experience.



2023

SCOOP

Hybrid construction concepts
for sustainability



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SCOOP is advancing a cost-efficient, adaptable hybrid manufacturing concept aimed at sustainable, large-scale production of intricate structural components. The integration of polyether and carbon fiber filament deposition, coupled with post-consolidation or overmoulding, results in lightweight, competitive structures featuring sensor integration.

Two use cases in medical technology and aviation are currently under investigation and qualification to facilitate a swift market launch beyond the scope of the project.



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I P C

9T LABS

2023

ConFacts

Integration of digital and conventional manufacturing



A holistic approach synthesises digital and traditional manufacturing via open data integration and intelligent materials. This facilitates interconnected educational solutions featuring both virtual and physical demonstrations in actual production environments.

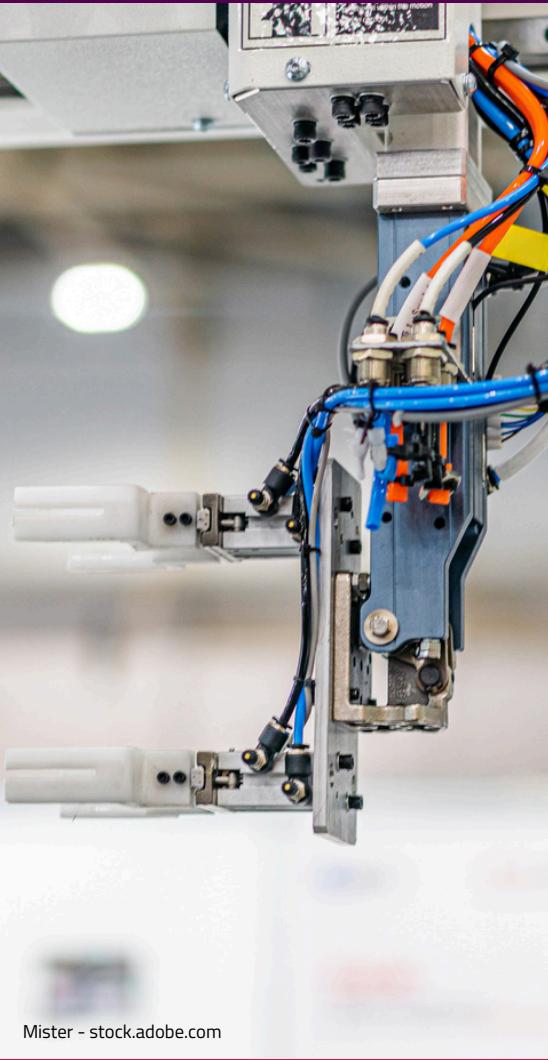
By engaging three EIT RIS countries, the concept is disseminated extensively. Partners modify their training facilities to align with the central 5-module TLF (Teaching and Learning Factory) infrastructure in Hungary as well as local industry requirements.



2023

DigiMain 4.0

Empowering digital and technical robotics skills of maintenance workforce 4.0



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DigiMain 4.0 aimed to establish a joint training-oriented project to facilitate re-/upskilling of maintenance professionals by:

- Preparing and providing a training course and learning nuggets for professionals – especially for re-/upskilling of the maintenance workforce – by focusing on cobot technology;
- Developing didactic concepts and learning nuggets – with a focus on maintenance systems for a human-robot shared workplace – that take into account the different target groups (novice to mastery levels) of professionals and job seekers;
- Sharing expertise, resources, and networks among learning factories of Festo Lernzentrum Saar and TU Wien as well as Joanneum Research's Robotics Training Center;
- Exploring new business cases in cooperation with associated regional and local VET (Vocational Education and Training) schools in Austria and Germany.

As a result, e-learning content in English and German has been created, and two cobot demonstrators for hands-on learning have been developed.



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2022

Enhance

strENgtHening skills and training
expertise in humAN maChinE interaction



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Due to the rapid development in the field of human-machine collaboration, and specifically in the practical use of collaborative robots, experts and professionals in the manufacturing industry are faced with new challenges. They are confronted with safety and application problems that require very specific skillsets and knowledge of norms and standards. However, they often lack opportunities to expand their competencies.

This project is aimed to set new standards for lifelong learning. A modular training programme has been developed, consisting of e-learning material and practical workshops on-site. The training builds on basic knowledge of production control and planning and enables participants to develop the knowledge necessary for the implementation of collaborative and mobile robots in existing or new processes.



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UNICO TeleNuggets

Digestible nuggets for teaching



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Teachers serve as essential catalysts for knowledge dissemination across all educational tiers. This project creates learning and teaching modules ("nuggets") focused on manufacturing scenarios involving manipulators and mobile robots. The objective is to motivate universities to incorporate EIT Manufacturing-related content, thereby enhancing the educational impact.

The teaching modules assist educators in lesson planning, structure learning pathways, and foster innovative learning experiences. They can be seamlessly integrated into existing courses with minimal effort. Students develop pertinent technological skills, industrial companies gain access to qualified specialists and the European economy enhances its technological competitiveness.

The project will deliver content for forthcoming EIT-certified programmes and enhance the network and outreach of EIT Manufacturing through premier educational partners.



2021

FactoRIS

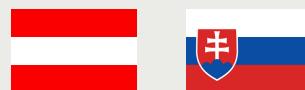
Supporting SMEs in EIT RIS countries



The initiative enhances the capabilities of EIT RIS (Regional Innovation Scheme) countries by providing SMEs with optimised infrastructure and skilled professionals for digital enterprises. Employee training bolsters job security and market value, while practical training equips university graduates to tackle SME-specific challenges and foster digital transformation.

A remotely accessible learning factory concept facilitates training in nations lacking their own infrastructure and accelerates the transition to Industry 4.0. This enhances competitiveness and assists companies in innovation-driven transformations, allowing them to meet European and global market demands more effectively and attain greater profitability.

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SOVA DIGITAL
Product Lifecycle Management

U. PORTO
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UNIVERSIDADE DO PORTO

S T U
SLOVAK UNIVERSITY OF
TECHNOLOGY IN BRATISLAVA

EIT-labelled Doctoral School

PhD programmes to excel innovation and entrepreneurship



The EIT-labelled PhD programme fosters innovation and entrepreneurship among manufacturing PhD students. It features a kick-off event, summer and winter schools, and support for venture programmes. Networking activities and industry connections enhance the initiative to encourage the establishment of new startups.

The Doctoral School welcomes students pursuing academic or industrial PhD positions and provides an additional 60 ECTS programme. Selection criteria are based on PhD topics that correspond with EIT Manufacturing flagships, manufacturing trends, innovation and entrepreneurship.

Academic PhD candidates engage in industry mobility to enhance market orientation, whereas industrial PhD positions are established in collaboration with the university, industry and the Doctoral School. Matchmaking events facilitate these positions.

Industry-related dissertations enhance the link between applied research and business. Students acquire practical experience, comprehend market demands and broaden their professional network.

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2022

ROS4DEV

Developments of ROS (Robot Operating Systems) Solutions



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ROS4DEV is a versatile learning package designed to cultivate ROS (Robot Operating Systems) solutions within enterprises, startups and SMEs in the manufacturing and robotics sectors. It provides practical training on advanced ROS topics, including frugal AI, supervised learning techniques, learning by demonstration and cybersecurity.

Participants engage in a tailored online programme and practical training centered on real-world applications. The intended audience includes engineers, ROS developers and alumni of prior ROS training sessions, such as EROS4PRO.

The consortium unites specialised expertise: Arts et Métiers and AMVALOR in artificial intelligence, ALIAS Robotics and Joanneum Research in cybersecurity, and the University of Tartu in software development and continuous integration. Each partner contributes extensive experience in ROS development.



ConnectSEE

Connecting South-Eastern Europe (SEE) to learn and grow



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The ConnectSEE project establishing a network of learning factories among six universities and institutes across Europe. Its objective is to enhance TLFs (Teaching and Learning Factories), deliver training and facilitate the exchange of expertise.

TLFs facilitate manufacturing training for skilled workers, students and job seekers, particularly in the Balkans.

ConnectSEE offers local participants access to learning factories for reskilling and upskilling.

Students, professionals and job seekers from Croatia, Estonia and Romania gain from customised courses that equip them with both technical and non-technical skills for the European labour market.



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