

SURE5.0

INDUSTRY 5.0 TRANSITION GUIDE

Resources and tools for your growth



Funded by the
European Union

SURE5.0

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Project information: www.sureproject.com

SURE

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INTRODUCTION

This guide is designed to give SMEs the insights, tools, and resources they need to navigate the transition to Industry 5.0. With expert knowledge, practical tools, and essential resources, it empowers businesses to take clear and confident steps toward digital transformation, sustainability, and resilient growth.

Whether you're just beginning to explore Industry 5.0 or are already in the process of transitioning, this guide offers the key information you need to move forward with innovative strategies, sustainable practices, and valuable partnerships.

In the **What is Industry 5.0** section, we demystify the core concepts of this new industrial era, by highlighting the main pillars and inviting you to discover some examples on Industry 5.0 transition.

In the **What is SURE5.0** section we provide an in-depth look at the SURE5.0 project, a key initiative designed to support businesses transitioning to Industry 5.0. The **Meet the SURE5.0 Partners** section introduces a network of leading experts and organizations pioneering Industry 5.0 strategies. The section **Main Results of the SURE5.0 Self-Assessment**, shows key insights into how businesses across various industries rate their readiness for Industry 5.0, showcasing common strengths challenges, and areas that need attention. Information related to the **Catalogue of Complementary Service Providers** is also included here, gathers a curated list of companies and organizations offering essential services and solutions for Industry5.0 transition. Whether you need advanced technologies, consulting services, or sustainability solutions, these providers can help tailor your transformation efforts to meet your specific needs.

Finally, the section **SURE5.0 Acceleration Programme** includes all the Industry 5.0 transition plans implemented within the framework of the SURE5.0 project, both in the first and second programme. This section presents the main highlights of the Acceleration Programme and success stories, offering a clear understanding of the impact of the project.



SURE5.0 consortium meeting in Coimbra (Portugal) – 06/2024

What is Industry 5.0?

The concept of Industry 5.0 was, at the European scale, firstly introduced by the European Commission in 2021. According to the official definition, this approach provides a vision of industry that aims beyond efficiency and productivity as the sole goals and reinforces the role and the contribution of industry to society.

Indeed, on the one hand, it puts the wellbeing of the workers at the centre of the production process. On the other hand, it places the environmental transition as a key driver for transforming manufacturing and production processes.

Adding to that, Industry 5.0 shouldn't be seen as a new industrial revolution but as a complement to the last industrial revolution, that is to say Industry 4.0.

As a reminder, the Fourth industrial revolution can be described as the digitalisation of manufacturing and industrial practices using smart technologies, such as AI and IoT (Internet of Things), to increase efficiency and flexibility of production.

In truth, staying profitable and challenging is essential for enterprises, whichever their form but especially for industrial SMEs.

The aim of Industry 5.0 is therefore to give companies a competitive edge by implementing Industry 4.0 technologies to maximize their efficiency, productivity and sustainability while keeping its workforce upheld.



Transition towards Industry 5.0 relies on 3 main pillars, that can be addressed simultaneously or in isolation:



- **Human-centricity**, as already mentioned before, which aims at putting the wellbeing of the workers at the centre of the processes. For example, how to make use of technologies to reduce painful tasks, how to make industrial jobs more attractive by encouraging interaction between operators and machines, for higher added value tasks, or else how to enhance the upskilling and/or reskilling of the collaborators within the company.
- **Sustainability**, to enable organisations to reduce negative environmental and social impact, while increasing positive impact by creating more sustainable solutions.
- **Resilience**, corresponding to the ability to answer to disruptions, whether political, environmental, or health related that are crucial for an organisation to survive and stay competitive.

Among these topics, the role of the industry workforce changes considerably and therefore needs to be adjusted and adaptable. That implies the employer is focused on investing in skills, capabilities and well-being of his/her employees.

An important prerequisite for Industry 5.0 is that technology serves people. It means that the technologies used to improve production processes must be adapted to the needs and diversity of the operators, who are empowered and able to evolve in a more inclusive working environment.

With Industry 5.0, creativity and innovation are encouraged through the interaction between employees and technologies, making it more interesting and engaging. One of the main results is the attractiveness of industrial jobs, which is actually a big challenge to tackle nowadays in Europe and one of the main concerns of its ecosystem.

What is SURE5.0



The economic crisis caused by the pandemic have led to supply chain problems and a strong inflationary pressure, demonstrating the fragility of traditional economic sectors, especially in the manufacturing industry. This turbulent environment urges the companies, especially SMEs, to adapt and transform themselves permanently, so they can enhance their competitive advantage in the future.

In this context, 11 european partners joined forces to launch the SURE5.0 project “Supporting the smes SUSTainability and RESilience transition towards industry 5.0 in the mobility, transport & automotive, aerospace and electronics European ecosystems”, funded by the European Commission under the Horizon Europe programme.

The SURE5.0 project aims to support European SMEs working on these industrial ecosystems, to advance in their digital transformation process while becoming more human-centric, sustainable and resilient.

Meet the SURE5.0 partners

• AEROSPACE VALLEY

Aerospace Valley is the leading European competitiveness cluster in the aerospace sector serving three strategic sectors in Occitanie/ Pyrénées - Méditerranée & Nouvelle-Aquitaine regions. It includes leading Groups, start-ups, SMEs, Research Laboratories, public stakeholders, academic institutions, and training organisations. Together, these stakeholders with their rich diversity and complementary skills are contributing to the development and growth of the aerospace sector in the territory.

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• CEAGA

The Galician Automotive and Mobility Cluster (CEAGA) promotes high-impact cooperative projects to improve the competitiveness of the Galician automotive and mobility industry. The importance of CEAGA lies in the great critical mass it represents. CEAGA gathers the whole automotive and mobility industry in Galicia: the car maker, the Stellantis Center of Vigo; more than 150 component manufacturers and service providers; the Automotive Technology Center of Galicia, CTAG; and new startups created within the framework of the business accelerator BFA, constituting a complete innovation pole of more than 250 companies.

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• SILICON ALPS

The Silicon Alps Cluster is a private-public partnership with the aim to develop and position the electronics and microelectronics industry in Austria with a focus on Carinthia and Styria. We bring together 130 members from industry, research institutions, academia and public in order to foster innovation and collaboration to strengthen semiconductor industry among the Silicon Alps partners. Within our network we have the entire value chain from the semiconductor industry.

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• FRAUNHOFER INSTITUTE

The Fraunhofer Institute for Production Technology IPT develops system solutions for the networked, adaptive production of sustainable and resource-efficient products and the associated services. Our focus is on process technology, production machines, production quality and metrology, and technology management, and ranges from the fundamentals to the digital transformation of production. With around 480 employees, the Fraunhofer IPT is working to make production processes, systems and products more climate-friendly and ecological.

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• F6S

F6S is a leading global founder and startup network that helps public sector entities around the world to promote, communicate and disseminate technical and research projects. F6S stands for F-ounder-S. Our mission is to help founders and startups grow to solve the world's pressing social, economic, environmental, sustainability and innovation problems. We also work with corporates, investors, research institutions, programs, universities and others in the global startup ecosystem.

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• AIMEN

AIMEN Technology Centre is a non-profit private association composed of 110 companies that provide technological support to more than 400 companies engaged in industrial or commercial activities. AIMEN's core activities include promoting research, enhancing manufacturing capabilities, and advancing simulation and joining technologies. Expert technology providers, the RTO is endowed with an impressive and growing track-record in EU and national projects on technology uptake.

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• ANFIA

ANFIA represents and offers services to the automotive companies in order to support and strengthen their competitiveness, growth on foreign markets and integration in mobility systems, through: (1) Relations with national and international institutions; (2) Networking activities, participation to technical-regulatory committees, sector studies and analysis, consultancy and training. ANFIA represents Italy in the European and worldwide automotive associations; it has connection with all the stakeholders of mobility sectors and with the policy and technical regulatory makers at international level.

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• INIZIATIVA

For over 30 years, INIZIATIVA has provided services related to three main areas:

- (1) Finance,
- (2) Innovation
- (3) Strategy

In these areas, the company provides support to enterprises, SMEs and public administrations with advisory services aimed at creating the conditions for nourishing sustainable development and generating tangible added value for the customers, maximising development opportunities, growth and impacts.

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• EIT MANUFACTURING

EIT Manufacturing is an initiative of the European Institute of Innovation and Technology (EIT), a body of the European Union. We are the leading pan-European community focused on fostering innovation in manufacturing through our unique active ecosystem. Our network brings together more than 170 partners including industry leaders, connecting business, startups, academics and research institutions to make innovation happen.

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• **TALTECH**

Founded in 1918, TalTech is the sole technological university in Estonia. TalTech is a research-based university offering Bachelor's, Master's and Doctorate degrees in technology, applied science, IT, business and maritime studies. Renewed study programmes that target the needs of the labour market make TalTech graduates the expected experts. As a leader in science, technology, and innovation, TalTech maintains constant interaction with universities around the world, bringing together scientists, students, and entrepreneurs. TalTech is also the most international university in Estonia.

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• **CORALLIA**

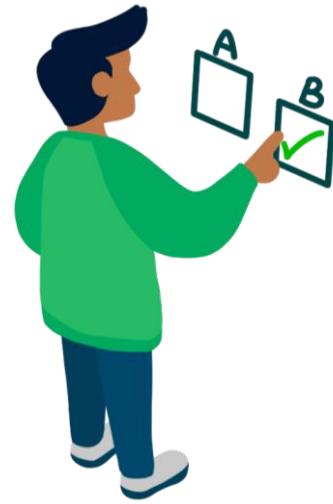
Corallia is a think tank, incubator, entrepreneurship accelerator, and multi-cluster facilitator established in 2005 as a Unit of the Athena Research Centre and has played a key role in the development of the European startup ecosystem. Corallia has supported up to date >500 innovative enterprises, of all sizes, to grow internationally, of which >300 new startups. More than 10.000 people and organisations have directly benefited from our activities, while the indirect beneficiaries exceed 100.000 civilians and organisations. Corallia offers services and undertakes initiatives that cover the entire entrepreneurial trip, from its very beginnings to its acceleration, growth and integration with the ecosystem.

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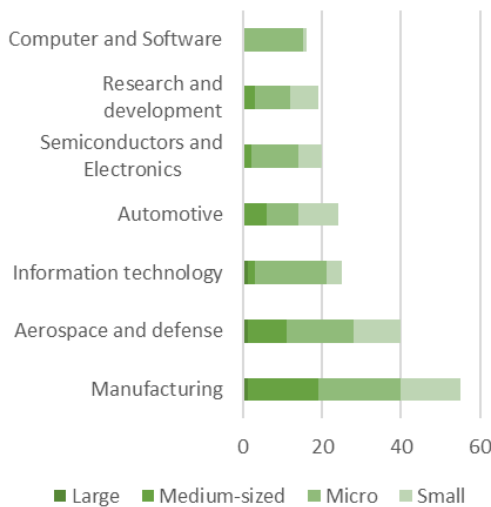
About Industry 5.0 self-assessment



The self-assessment survey reveals a mixed readiness across organizations in adopting Industry 5.0 principles, showcasing diverse levels of progress based on company size, industry focus, and technological priorities. Between 2022 and 2024, 247 companies replied to the self-assessment survey.

A majority were micro-enterprises, followed by small companies. Manufacturing dominated participation, followed by Aerospace and Defense and Information Technology.

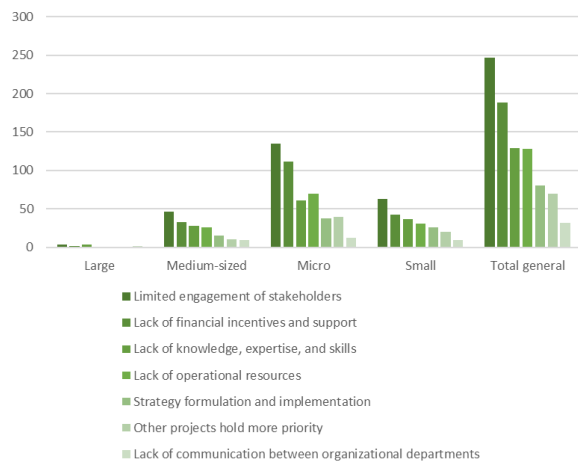
Sector and size



They survey revealed that **larger enterprises** tend to **lead** in adopting advanced data management practices, such as machine data processing and production data utilization, whereas **micro and small** enterprises face **challenges** deriving from limited **financial** and **technical resources**.

Key challenges identified include **resource constraints** for small firms, **integration** and **change management** for **medium** enterprises, and cross-departmental coordination for large firms, underscoring the need for tailored approaches to Industry 5.0 adoption.

Challenges



Catalogue of complementary service providers

This catalogue includes the portfolio of more than 200 SMEs operating in the Mobility, Transport & Automotive, Aerospace & Defense, and Electronics manufacturing value, offering technological solutions and services for Industry 5.0 transition.



SURE5.0

ACCELERATION PROGRAMME

The SURE5.0 Acceleration Programme was created to support SMEs operating in the European Mobility, Transport and Automotive (MTA), Aerospace and Defense, and electronics value chains. The objective is to provide companies with services, knowledge, and resources to boost the digital development of their businesses in a more human-centered, sustainable, and resilient way. As part of the Programme, €2.6 million in cascading financing was allocated to support SMEs transition plans. Two Acceleration Programmes were launched, each one divided into two sequential phases.

• PHASE 1: Assess & recommend

Companies selected in Phase 1 accessed the following benefits:

Individual Industry 5.0 Roadmap: Consortium provided SMEs with individual assessments and recommendations covering the entire spectrum of Industry 5.0 transformation.

Investment Readiness Support: Companies were evaluated and categorised into 3 levels (Investment ready, Almost ready, Not ready) and received recommendations.

Training activities: Access to training modules on Industry 5.0.

Social innovation & human-centricity: Companies were provided with a “Guide for social innovators” and received a training course about how to elaborate a business model addressing more human-centric and social approaches.

Community of Practice of Alliance: That provides its members with open access to peer-to-peer networking and knowledge sharing between pan-European business leaders.

• PHASE 2: Business Transformation & Resilience

Companies that completed the first phase and were selected in the second phase accessed the following benefits:

Equity-free funding of up to EUR 50k per SME: Companies accessed funding for their Industry 5.0 transition plans. At least 60% of this grant was used to hire supporting experts included in the SURE5.0 Catalogue of Complimentary Service Providers.

Investment Readiness Support: Companies were provided with ad-hoc business support services such as business modelling, planning, financial assessment or funds scouting.

Training activities: During phase 2, companies accessed on-demand training modules covering both technological and innovation topics.

Social innovation & human-centricity: A session was organised to introduce funding opportunities.

Advanced technological services: Interested companies had the opportunity to be provided with technological individual assessments and/or proof-of concept testing.

RESULTS OF THE TWO ACCELERATION PROGRAMMES



53

Awarded SMEs



2,6 M

€ Granted (€50,000 per SME)

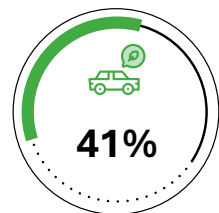
ACCELERATION PROGRAMME I

Phase 2 - Business Transformation & Resilience

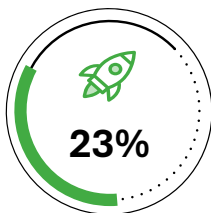
Dec 2023 Jul 2024

15
Awarded
SMEs

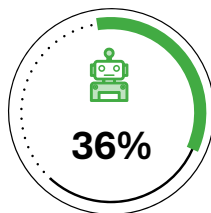
750,000
€ granted
€50,000 per SME



Mobility, Transport,
Automotive



Aerospace &
Defense



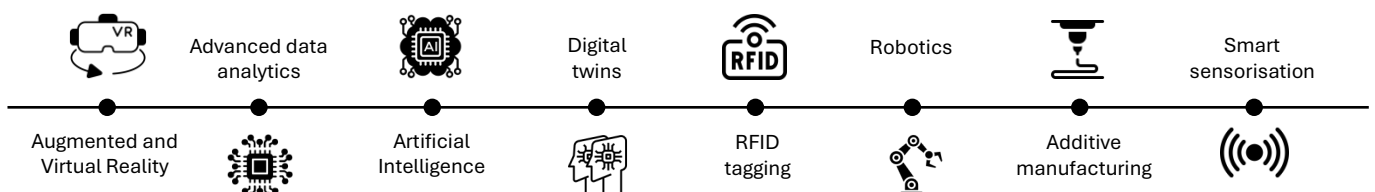
Electronics

15 SMEs from 9 different European countries were awarded in the SURE5.0 Acceleration Programme 1. Each SME received a maximum of €50,000 to implement its 5.0 transition plan. 41% of these SMEs operate in the Mobility, Transport and Automotive ecosystem; 23% in the Aerospace & Defense ecosystem; and 36% in the Electronics ecosystem.



Location of beneficiary SMEs in ACC1

Technologies implemented in the SMEs projects





CATALOGUE
ACCELERATION PROGRAMME I
AWARDED PROJECTS

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BLUECOVER TECHNOLOGIES



PROJECT

Bluecover is a company specialised in geolocation services for professionals and enterprises. Our product Vision Surveyor allows automatic detection and mapping of objects by vision in order to increase value of surveying for customers. Our participation on the SURE5.0 Acceleration Programme focused on improving the efficiency and flexibility of IoT production for this product. The project covered two activities that are supported by Industry 5.0 pillars: Improve AI/Computer Vision infrastructure and Produce a new PCB module to improve energy management.

CHALLENGES

Some gaps were identified by SURE consortium during the project: Streamline AI/Computer Vision processes for making pilots and demonstrations faster; optimise IoT hardware design in consumption; and Improve IoT hardware interoperability.

SOLUTIONS



The developed solution mainly includes technologies driven by **Artificial Intelligence (AI)** with Computer Vision services. Although the project focused on the Vision Surveyor product, the company's overall goal was to improve the efficiency and flexibility of **IoT** production.

“

Our product, Vision Surveyor, detects and maps objects using AI-based computer vision on Smart Cities and Transportation sector. The product flow, that aims to continuously improve AI models, is driven by Industry 5.0 values



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Mobility, Transport & Automotive



Aerospace & Defense

BORA



PROJECT

Implementation of a real-time monitoring platform for our company energy consumption to identify any waste generated during the company's hours of inactivity, during machine downtime/maintenance phases and during full operation phases. The system is connected to intelligent sensors placed on the systems and which communicate via standard protocols allowing the detection, acquisition and subsequent processing of energy data. This project allow us to make more informed and reactive decisions.

CHALLENGES

Our main challenge was to improve the efficiency, competitiveness and sustainability of the company in the era of Industry 5.0. The training modules of SURE were useful for us in order to become more and more aware on the subject of industry 5.0, focusing on sustainability and human centricity, understanding which the challenges and skills are needed to be more and more efficient and competitive in these really crucial topics.

SOLUTIONS



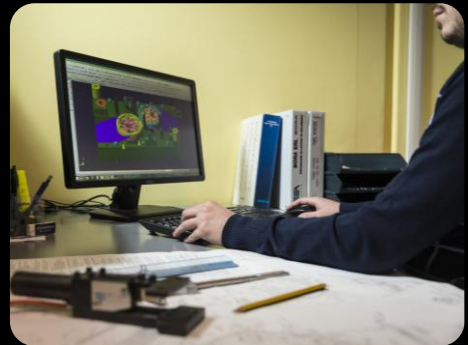
Development of a system for monitoring, collecting and analysing data on the energy consumption of the company's production processes, carried out by the technology provider Logical System.



Furthermore, the possibility of implementing Artificial Intelligence algorithms that are capable of monitoring energy flows for the intelligent optimization of systems was analysed.



Real-time monitoring platform for energy consumption that will allow us to make more informed and reactive decisions



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Mobility, Transport & Automotive

CISC SEMICONDUCTOR



PROJECT

The aim of the project is to test RFID/NFC tags during the manufacturing process in order to optimise the entire production chain in terms of time, energy and resources. With the project the company wants to ensure that this process runs smoothly, without delays or bottlenecks. In addition, the project allows to receive valuable feedback from customers, highlighting new challenges. These successes motivated the company to continue its research and development efforts with great commitment, consistently discovering new solutions and driving its growth forward.

CHALLENGES

The training and support from SURE5.0 enabled the company to overcome their AI challenges and optimise the system, improving the overall production process and providing valuable feedback to workers for more effective failure analysis.

SOLUTIONS



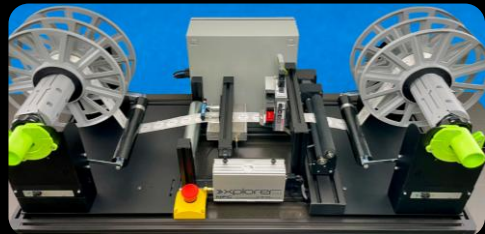
Providing visualisation and real-time feedback to the human workers, supported by **cloud-platforms**, the system can be trained and optimised.



Additional data from **sensors** (temperature, humidity, optical, ..) help to detect anomalies throughout the overall production, reducing material costs and increase consistency, speed and quality of labels.

“

Sustainable and supportive manufacturing process for RFID/NFC labels



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Electronics

GREENTWIN



PROJECT

By participating in the SURE5.0 Acceleration Programme, GreenTwin developed a prototype Digital Product Passport (DPP) focused on raw material criticality and resource savings. This solution captures key sustainability features, which will be integrated into the company's B2B platform, enhancing their commitment to sustainable development. The GreenTwin goal now is to acquire a minimum of 60 new companies as customers through the B2B platform within a year.

CHALLENGES

The main challenge was designing and implementing a DPP-as-a-service solution that integrates seamlessly with our B2B supply chain platform. Collaborating with SURE5.0 provider LogiicDev, we developed a solution that first enables product data collection and then assesses the material criticality of those products.

SOLUTIONS



The service provider, LogiicDev, developed a mobile app for scanning products and identifying their core materials.

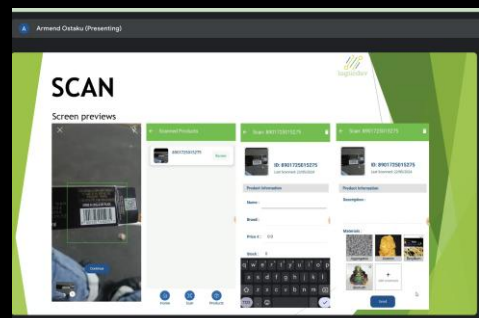
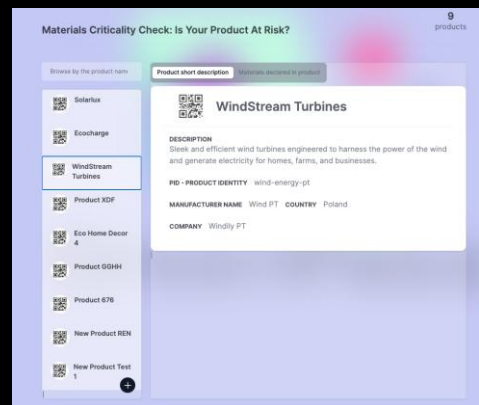


GreenTwin created a DPP prototype that integrates the app's data and analyses material criticality.

Together, these components form a comprehensive DPP-as-a-service solution.



Digital Product Passport: Assessing Materials Criticality - Is Your Product at Risk?



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Aerospace & Defense

KLAXON



PROJECT

Klaxon Mobility was founded in 2015 with the aim of developing innovative mobility solutions for people with reduced mobility based on the latest technologies. Thanks to the support of SURE 5.0, Klaxon is developing technologies for the predictive maintenance and fleet management of the devices, as well as developing and implementing technologies to support Klaxon's Production Department employees in their work.

CHALLENGES

The main challenge was to improve vehicle knowledge. With the SURE5.0 project, it has been shown that some issues and cause-effects are much clearer now thanks to the newly developed reports and statistics. Now we can say that Klaxon has the data and the context to create better forecast, campaigns based on real behavior of its sold vehicles; this will create a better customer experience, a better assistance experience, a better way to work and a better warehouse management since we can forecast what to order.

SOLUTIONS



Data collection system: telemetry system to see the vehicle sensor's data and to build new algorithms. This data can be stored and archived for on-demand analysis.



Predictive maintenance & claim coverage: to understand the main causes of failure of our components, creating a base system for our algorithms to work in combination with the Data collection system.



We make everyday mobility easier for people who use a wheelchair, enabling them to overcome difficult and uneven terrain with the minimum of effort



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Mobility, Transport & Automotive

MEGARIDE



MEGARIDE
APPLIED VEHICLE RESEARCH

PROJECT

MegaRide focuses on advancing automotive technologies with a strong emphasis on human-centricity and sustainability. Their project aims to improve tire safety, reduce environmental impact, and enhance the overall driving experience through innovative research and development, aligning with Industry 5.0 principles.

CHALLENGES

The main challenge is to enhance testing phase and improve sustainability in automotive solutions. To achieve this, expert guidance is needed to overcome technological, human-centric, and ESG-related challenges to advance our innovation efforts. With this project, MegaRide strengthens its R&D, positioning itself for long-term growth, technological leadership and improved market competitiveness.

SOLUTIONS



Advanced data analytics.



Artificial Intelligence driven tools.



Sustainability-focused strategies to improve tire safety and performance.

“

Driving innovation and sustainability: enhancing tire safety and performance through human-centric and eco-friendly automotive solutions



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Mobility, Transport & Automotive

NET-AUTOMATION



PROJECT

For the ForceBEE brake force measurement on rail vehicles, the proper use of the systems by employees and operators is a prerequisite for reliable data. Therefore, the human factor plays an important role in NET-Automation technology. The project developed within the framework of the SURE5.0 Acceleration Programme consists of establishing a new after-sales system that would replace our current email and telephone support.

CHALLENGES

The company had to deal with long periods of time via email or phone when customers had questions about using ForceBEE. Phone calls can lead to misunderstandings that require a lot of patience on both sides, as you cannot “see” the problem. With the implementation of AR glasses, the company succeeded in generating added value for all parties involved. Furthermore, the newly acquired knowledge around Industry 5.0, strengthens NET-Automation’s strategy in this direction.

SOLUTIONS



AR data glasses were purchased and workshops took place.

A new service workstation was set up at NET-Automation as a counterpart to the glasses. The first internal tests took place, with a focus on a positive attitude, active participation and feedback loops.

“

We implement AR technologies to reduce the environmental footprint and improve the customer and internal employee experience with our ForceBEE system.



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Mobility, Transport & Automotive



Electronics



O'NEAL



PROJECT

O'Neal is a global leader in Motocross and MTB protective apparel and accessories. The company is expanding its line of back protectors with innovative technology designed to safeguard users against spinal rotation injuries. As part of its participation in the SURE5.0 Acceleration Programme, O'Neal has equipped pre-series back protectors with a data measuring body network. Subsequently, this data was integrated back into the production process to optimise material parameters and improve production.

CHALLENGES

The measuring system developed is designed to collect data from two sensor nodes for the purpose of testing the recoil system. Both sensor nodes are built identically and use identical firmware. For this system to function correctly, the collected data from both sensor nodes must be time-aligned. This means that when examining a specific data point from node one, it is necessary to identify which data point from node two corresponds to the same time. Achieving this within a reasonable error margin was one of the main challenges for processing the data to extract the desired information.

SOLUTIONS



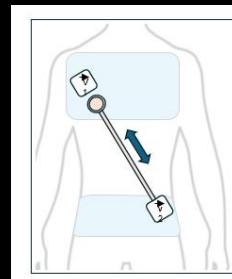
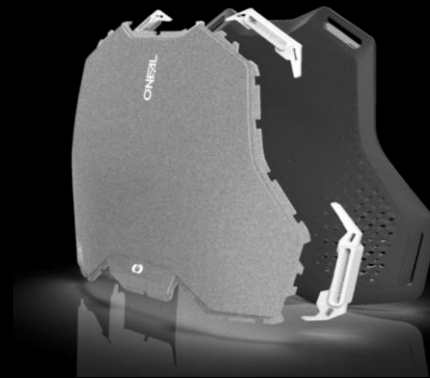
The project included the development of sensor electronics, emphasising PCB (printed circuit board) advancement and the selection of components to enhance both delivery safety and power efficiency.



The project is poised for further exploration of motion data concerning digital twins and the management of big data.

“

Addressing Body network system for Body Protectors in Transportation Safety through Industry 5.0 and Measurement Devices



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Mobility, Transport & Automotive

SURE5.0



Funded by the European Union

ORTNER REINRAUMTECHNIK



PROJECT

We are setting up a central control center, the "Leitstand," to enhance operations. This aims to improve efficiency by connecting construction processes with ERP systems, improving information flow and on-site management. We are also boosting data quality through clean-up and accuracy checks to support smarter decisions and strategic insights. As a result, we expect fewer delays, clearer communication, and smarter decisions.

CHALLENGES

We faced key challenges like limited resources, both in budget and time, which made achieving our full objectives difficult. Additionally, we needed to improve operational efficiency and streamline production processes. These constraints led us to join the Acceleration Programme to find strategic solutions and enhance our capabilities.

SOLUTIONS



Optimised work plans and modular costing templates, updated bills of materials with control loops for accuracy, and distributed production across more workstations for efficiency.

Product configurator to support the PDM/PLM system, ensuring smoother and automated production management.



SURE5.0 allowed us to harness the innovative potential of Industry 5.0 to enhance our operational resilience



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Electronics

PLANETEK HELLAS



PROJECT

Through the SURE5.0 Acceleration Program, Planetek launched the PRIME 5.0 project. Thanks to this project, the company enhanced the cybersecurity posture of the Company and its critical assets, including the under development OptiSat nanosatellite. An in-depth cybersecurity risk assessment was conducted and worked as a basis for the comprehensive Cybersecurity Policy that was created. A prototype cybersecurity solution was also developed.

CHALLENGES

The increased connectivity, automation, and integration of digital technologies make businesses more vulnerable to cyber threats. Planetek prioritises cybersecurity to protect their operations, data, and the safety of their human workforce, so, by targeting cybersecurity as a focus area, is addressing a fundamental aspect of Industry 5.0.

SOLUTIONS

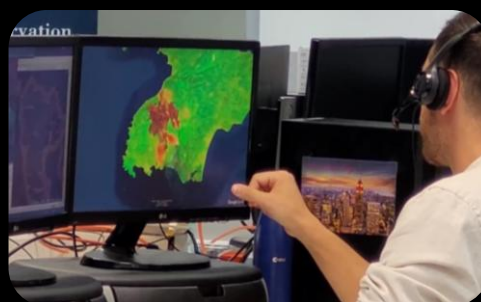


Cybersecurity solution and the Optisat nanosatellite under development.

An in-depth cybersecurity risk assessment was conducted and worked as a basis for the comprehensive Cybersecurity Policy that was created. A prototype cybersecurity solution was also developed.



Establishing a strategic roadmap, as part of the cybersecurity strategy, to provide a clear and structure plan for securing Planetek's operations



CONTACT



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Aerospace & Defense

POCPOC TECH



PROJECT

PocPoc Tech embarked on an Industry 5.0 transformation to innovate maritime drone. This project aimed to address the environmental and operational challenges in the maritime sector, demonstrating how modern technologies can foster a sustainable and efficient future. As a young company, we wanted to lead by example and integrate “good practices” into our production tool.

CHALLENGES

We started the project with a strategic planning phase that involved comprehensive audits to identify inefficiencies and dependencies, leading to the development of a robust local procurement and energy efficiency strategy. Subsequent months focused on implementing these strategies, retrofitting the warehouse with eco-friendly technologies, and initiating the development of an AI-based predictive maintenance tool. These efforts were supported by collaborations with key partners, ensuring a holistic and sustainable transformation.

SOLUTIONS



We developed an AI-based predictive maintenance tool to improve maritime drones' maintenance. We also integrated battery monitoring and logging capabilities, allowing data to be analysed by AI.



Additionally, the creation of a digital twin of our product, along with a realistic simulator, significantly reduced the time required for in-real-life testing.

“

Leaders in the sustainable production of maritime drones through the implementation of modern technologies and AI tools



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Electronics



Aerospace & Defense

REUSABLE TECHNOLOGIES



PROJECT

The project focuses on automating the disassembly of End-Of-Life lithium-ion batteries from power tools to recover cells for reuse. Using a combination of advanced robotics, X-ray scanning, and laser cutting, the process aims to safely and efficiently dismantle complex battery assemblies, enhancing sustainability and recycling. The project allows us to position ourselves as an innovative company in sustainable battery repurposing, expanding our capabilities and market reach in the circular economy by offering advanced solutions for e-waste processing and material recovery.

CHALLENGES

The main challenges were the high complexity of manual battery disassembly, lack of standardized designs, and safety risks like thermal runaway. To overcome these, we needed support for automation development, advanced robotics integration, and efficient scanning technologies, which the Acceleration Programme could provide.

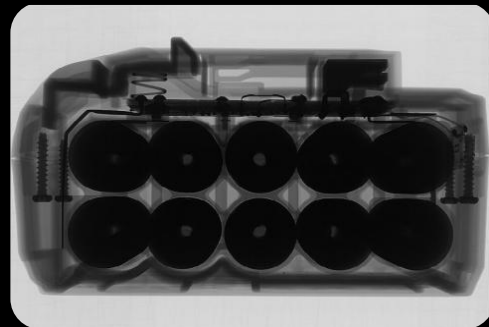
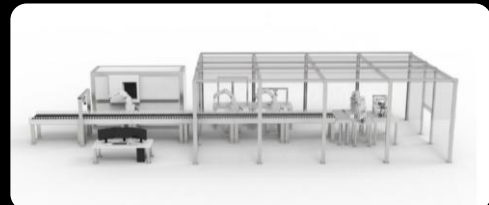
SOLUTIONS



We implemented advanced X-ray scanning for precise internal visualisation, integrated robotics for safe disassembly, and optimized laser cutting to manage non-standardized battery housings. These solutions addressed safety risks, reduced manual labour, and increased disassembly efficiency in line with Industry 5.0 principles.

“

Automated battery disassembly for a sustainable future: Efficiently recovering lithium-ion cells for reuse through robotics and precision cutting



CONTACT



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Electronics

SCOOTABLE (Rateltech)



SCOOTABLE

PROJECT

Rateltech (Scootable), through its involvement in the SURE5.0 programme, embarked on a transformative project to enhance the efficiency and functionality of IoT modules for electric scooters. The integration of advanced technologies has significantly boosted operational capabilities, leading to enhanced user experiences and contributing to the sustainability of urban mobility solutions. The project's success has set the stage for market expansion and further technological innovations, positioning Rateltech as a leader in the IoT space for mobility solutions.

CHALLENGES

The project involved comprehensive activities from in-depth research on user needs to the development and refinement of IoT modules. Key activities included selecting and integrating communication protocols, developing and testing the prototype, and enhancing server infrastructure for resilience. During the project, we encountered technical delays in receiving specialised IoT and AI services. Significant challenges were faced in ensuring reliable communication between the controller and IoT module. Despite these challenges, we achieved significant milestones, demonstrating the functional capabilities of our IoT solution.

SOLUTIONS



Development of the IoT prototype for mass production, improving response times, and ensuring data transmission accuracy and reliability.



The project's success has set the stage for market expansion and further technological innovations, positioning Rateltech as a leader in the IoT space for mobility solutions



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Mobility, Transport & Automotive

SYNCHRO



PROJECT

Synchro is transitioning from manual to automated PCB assembly processes to improve efficiency, accuracy, and sustainability. By investing in robotics, automation, and RFID tracking, the company aims to reduce errors and increase resilience against disruptions. The project contributes to Synchro's growth by enhancing production efficiency, reducing costs, and improving product quality. This positions the company for market expansion, increased competitiveness, and long-term sustainability.

CHALLENGES

The main challenges that led us to participate in the SURE5.0 Acceleration Programme include inefficiencies in manual PCB assembly, increased rework due to human errors, and inconsistent quality from outdated equipment. We sought to overcome these issues by investing in automation, improving traceability, and enhancing our production processes.

SOLUTIONS



During the Programme, we implemented an automatic pick-and-place machine, integrated a conveyor oven, and introduced an RFID tagging system for enhanced traceability.



These solutions improved production accuracy, reduced errors, optimized efficiency, and supported our transition to a fully automated and sustainable manufacturing process.

“

Empowering precision and efficiency through automation: Synchro's journey to smarter, Sustainable manufacturing.



CONTACT



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Electronics

VERTLINER



“

Revolutionising drone production with Industry 5.0 and Cutting-Edge technologies

PROJECT

Vertliner is a field robotics company developing autonomous drones for the asset monitoring. Through the SURE5.0 programme, the company aims to optimise the production of its drones using digitalisation, automation, and Industry 5.0 methods, while integrating technologies like digital twins for improved efficiency.

CHALLENGES

As a growing company with a basic production line in place, Vertliner faced key challenges including scaling up manufacturing, integrating digitalisation and automation, and improving manufacturability through standardised drone designs. As a result, the company's efficiency and scalability were improved, positioning Vertliner for growth, increased capacity, and competitiveness.

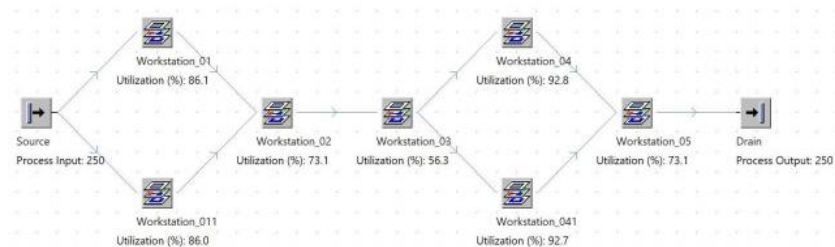
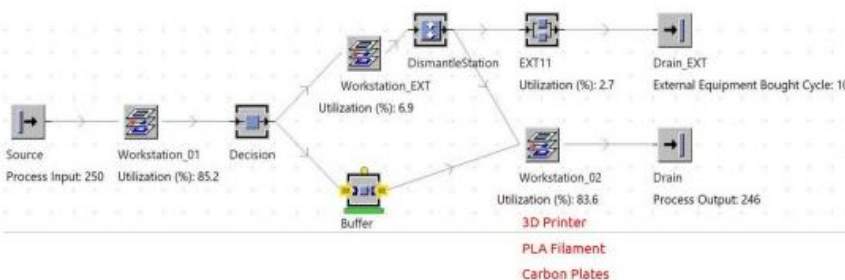
SOLUTIONS



Digital twins: The company tackled challenges by simulating its entire drone manufacturing process, from component procurement to final assembly.





It also integrated Industry 5.0 principles and advanced technologies through webinars and training offered by SURE5.0.



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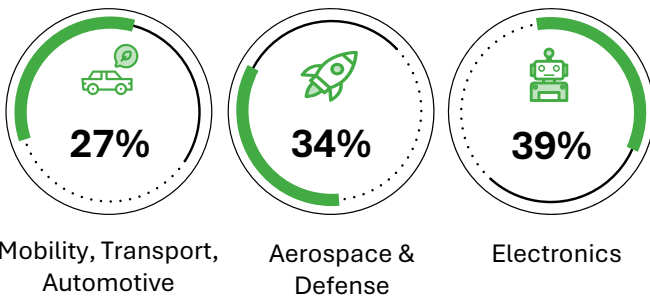


Aerospace & Defense

ACCELERATION PROGRAMME II

Phase 2 - Business Transformation & Resilience

May 2024 April 2025

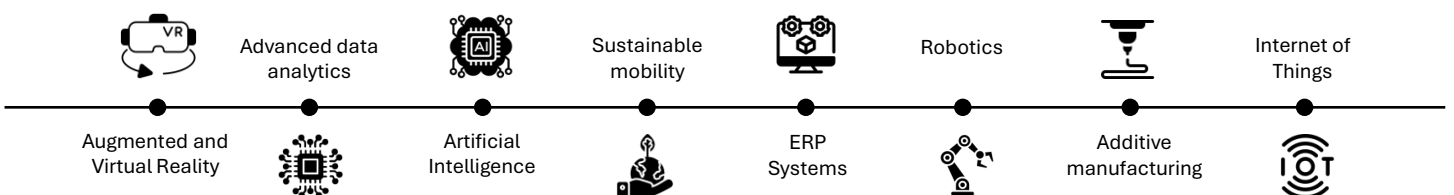


38 SMEs from 12 different European countries were awarded in the SURE5.0 Acceleration Programme 2. Each SME received a maximum of €50,000 to implement its 5.0 transition plan. 27% of these SMEs operate in the Mobility, Transport and Automotive ecosystem; 34% in the Aerospace & Defense ecosystem; and 39% in the Electronics ecosystem.



Location of beneficiary SMEs in ACC2

Technologies implemented in the SMEs projects



CATALOGUE

ACCELERATION PROGRAMME II

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AC-DISMANTLING



PROJECT

AC-Dismantling is a pioneering company in aircraft recycling, including aircraft up to 30 tons, drones, and the space sector. We develop innovative solutions to optimize end-of-life aircraft management, reduce environmental impact, and enhance the value of materials recovered from dismantling. Our transformation plan aims to support the imminent industrialization of the company to upgrade more parts in the future.

CHALLENGES

Three Main Challenges Identified:

1. Optimization of industrial processes: Establishing an efficient dismantling chain integrating traceability and material identification.
2. Supply chain and logistics strategy: Finding local and sustainable solutions for material recovery and flow optimization.
3. Digitalization and automation of operations: Integrating technologies to improve tracking, quality control, and dismantling efficiency.

SOLUTIONS



The plan includes the implementation of tools for (1) Measure the impact of the activity and highlight its virtuous ecological effects, (2) Secure parts sold with traceability enhanced by AI and geolocation, and (3) Protect our work areas from environmental degradation.



We develop innovative solutions to optimize end-of-life aircraft management



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Aerospace & Defense

ALI



PROJECT

ALI S.p.A (Aerospace Laboratory for Innovation components) produces a mini laboratory called MiniLab. The transformation plan for the MiniLab, based on the SURE5.0 roadmap, aims to convert this space module into an eco-sustainable subsystem suitable for a specific orbital satellite platform with autonomous re-entry capabilities. This project focuses on innovative solutions to mitigate environmental harm caused by space debris, while enhancing the MiniLab's functionality as both a research tool for eco-friendly materials and a platform utilizing these materials in its components.

CHALLENGES

Three main challenges identified:

1. Improve hardware efficiency and portability through the development of miniaturized hardware.
2. Research and test eco-friendly materials to minimize environmental impact.
3. Identify and evaluate sustainable alternatives to the current materials used in the MiniLab.

SOLUTIONS







The plan outlines several key experiments, including ReADI (focused on osteoporosis), Ovospace (studying fertility in microgravity), and ORION (investigating ovarian follicle activities). Future projects, such as Space Slimes, will test biological responses in space, highlighting the MiniLab's versatility for various scientific inquiries.

“

Simplifying the process of sending experiments into space, making it more accessible, convenient, and valuable



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Aerospace & Defense

ARTZAINAK



PROJECT

"Smarter Manufacturing Unit" or ASMÜ –a term meaning both "intuition" and "idea" in Basque language – is a project aimed at improving several aspects of company workshops' environment through digitalization and paving the way for the implementation of Industry 5.0 principles. Implementing the ASMÜ project puts the operators in a more central position, with an improved vision of their workload, better follow-up for their requests and an overall better understanding of the global workshop flow. The SURE5.0 project was a key to help the company first to recognize their needs and identify solutions, then to find specialized help to select the right solution for these needs, and finally to support its implementation cost.

CHALLENGES

The project started with a main challenge: while the employees use online and electronic solutions in their everyday life, this modern convenience stops in the workshop, where the same employees rely solely on paper timesheets, paperwork instructions, etc. This leads to inefficiencies, late decisions and loss of information.

SOLUTIONS



The project addressed this situation by harnessing the improvements in IT technologies and software, bridging the gap existing today between our ERP and the shop floor users.

The implementation of a MES (Manufacturing Execution Software) is the central part of the project, removing the need for paperwork sheets / instructions.

“

ASMÜ - A Smarter Manufacturing Unit



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Electronics

ASCENSORES TRESA



PROJECT

The Indang3r project aims to enhance workplace safety and well-being through a digital solution that monitors and manages risks in real time. It includes a mobile app for workers and a backend console for administrators, focusing on user-centered design, real-time data monitoring, alerts, and scalability for diverse industrial environments. This project positions us as a leader in workplace safety, builds employee trust, and reinforces our commitment to technological innovation and Industry 5.0 principles.

CHALLENGES

The main challenges leading to participation in the Acceleration Programme include ineffective monitoring of employee well-being, discomfort caused by surveillance, data privacy concerns, and the need for regulatory compliance. These issues prompted the adoption of Industry 5.0 principles, focusing on safety, efficiency, and employee well-being.

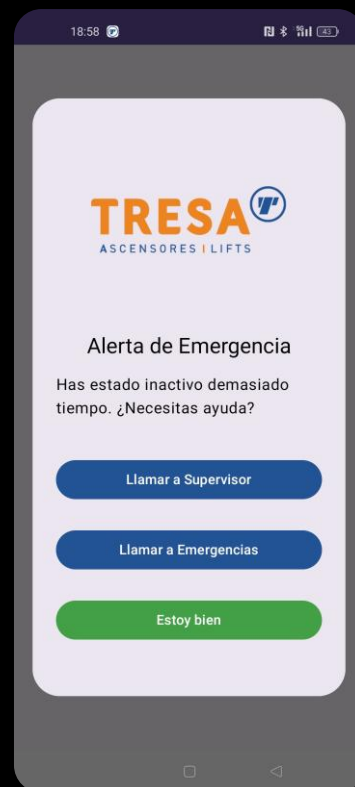
SOLUTIONS



During the Acceleration Programme, we developed a mobile app and central console that operate in the background, ensuring data collection is seamless and non-invasive. These systems enable real-time monitoring, enhancing safety, particularly for employees working alone in low-coverage areas, without disrupting daily activities.



Indang3r: Enhancing workplace safety and well-being through real-time monitoring, alerts, and responsive solutions for a safer, smarter environment



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Mobility, Transport & Automotive

AVIBIKE



PROJECT

AviBike Kft. designs and produces bicycle and scooter docking systems. As part of the SURE5.0 Acceleration Programme, an improved storage system was developed for parts needed in production and assembly. The updated version directs workers to the appropriate shelves and boxes based on the product being manufactured using LEDs that illuminate in the correct location. AviBike is also building a digital twin of its manufacturing facilities that will be used to simulate different production options.

CHALLENGES

The main challenge is to upskill workers, improve the working environment and be more sustainable. The original idea was to analyse the use of cobots so that the assembly and manufacturing can be made simple, more efficient and with reduced workload for the employees. The alternative is to use more traditional robots to automate some sections of production. Either of these solutions would make workers life easier, result in better working conditions and reduce the wasted caused by human errors.

SOLUTIONS



- Storage system upgrade: the new system indicates where the necessary parts for a product are in the storage area by using LED lights.
- Creation of a digital twin of the factory: the factory facilities were scanned and a 3D model was created.
- Overview of cobots available in the market: comparison of cost, functions, implementation costs and technical specifications.

“

Innovative bicycle and scooter docking systems



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Mobility, Transport & Automotive

AVIOCONVERT



PROJECT

The project aims to design and manufacture a Light Sport Aircraft (LSA) made of carbon fiber and powered by a highly modular and efficient electric-fuel hybrid configuration able to serve as a cheap and sustainable testbed for leading-edge and emerging technologies in the area of systems and materials. Thanks to the SURE5.0 Programme, AvioConvert will be able to embark new technologies in a modular way and able to demonstrate sustainable management of the whole system to offer leading-edge capabilities to a great number of companies and research organizations.

CHALLENGES

The main challenges were two:

- A. Find financial resources to help us in driving a change into a more sustainable design/manufacturing business model.
- B. Contact stakeholders or, at least, be part of forum, who shares our vision and project.

SOLUTIONS



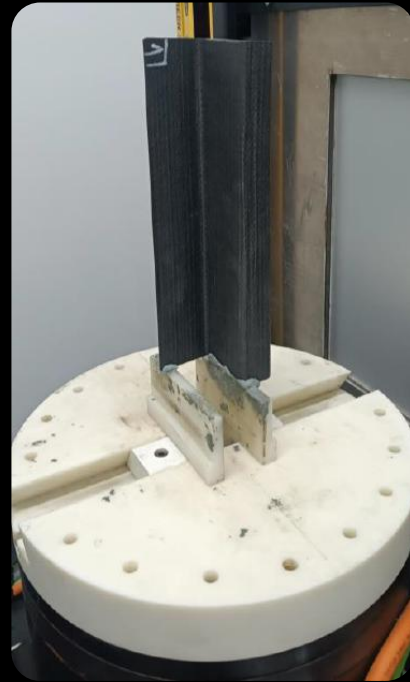
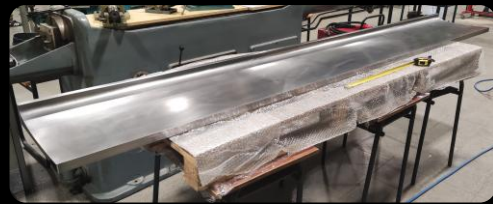
Design and manufacture of a mold equipped with integrated sensors to monitor resin flow during infusion, which will allow for more efficient and sustainable manufacturing of stab wound skin.



Tomographic Inspection on the Stab Longeron specimens that highlighted the defective areas. Based on this, the manufacturing process of the longeron has been enhanced and re-designed to make it more effective.

“

Anticipating the Future in an agile and sustainable way to make accessible the Progress to All



CONTACT



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Aerospace & Defense

BOOXIT



PROJECT

BOOXit develops a holistic logistics system based on reusable transport items (RTIs) and associated shelving systems. These hardware components are equipped with advanced electronics to enhance logistics, improving the efficiency of B2C parcel delivery through our patented boxes and racks. The project developed within the framework of the SURE5.0 Acceleration Programme aims to automate BOOXit boxes and racks so that a robotic arm can pick boxes from a pallet and store them in racks in a closed-loop system. This increases the level of automation in the supply chain.

CHALLENGES

Experience in advanced robotics and automation is required for project development. Collaboration with JOANNEUM Research allowed us to benefit from their expertise early in the development of the BOOXit container system and explore industrial implementation. Especially in early phases, Acceleration Programmes help startups connect with research institutes.

SOLUTIONS



New approaches for robotic applications were developed. Constructive discussions between engineers led to innovative ideas and improved the automation concept.



Make reusable, circular containers cheaper through automation than single-use packaging like cardboard boxes



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Electronics

C2CAT



PROJECT

C2CAT is embarking on a transformative journey to revolutionise its operations by incorporating advanced automation, digitalisation, and product tracking capabilities. The company aims to optimise its processes to enhance operational efficiency, improve product tracking across its supply chain, and leverage digital technologies for innovation. The C2CAT transformation project is a multi-faceted initiative that integrates cutting-edge technology across operations, product tracking, data systems and market analysis.

CHALLENGES

Four main challenges identified:

1. Lack of Centralisation of Data: the absence of a centralised data repository hinders the ability to gather and access all relevant information in one place.
2. Inefficient Data Extraction Tool: without a streamlined process for extracting and analyzing data, valuable insights may be overlooked.
3. Absence of Data Implementation Strategy in Design Process: necessary to leverage data-driven insights.
4. Lack of Market Dynamics Tracking: We need to keep up with market dynamics and evolution to identify new opportunities.

SOLUTIONS







- Automation Strategy for Machining Process
- Indoor and Outdoor Product Tracking
- ERP Enhancement and Digital Integration
- Market Analysis and Understanding

“

Advanced automation, digitalisation, and product tracking capabilities to enhance operational efficiency



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Mobility, Transport & Automotive

CEDRION



PROJECT

The automotive industry is undergoing a significant transformation driven by technological advancements. The AutoTech 5.0 project involves implementing advanced automation within our manufacturing operations and creating a collaborative environment where human intelligence and machine capabilities work in harmony. The project enhances our company's production efficiency and product quality by automating key processes. This drives innovation, reduces material waste, and accelerates time-to-market, positioning the company for sustained growth and competitiveness in the industry.

CHALLENGES

Seeking an innovative manufacturing process is one of the challenges identified, to provide the greatest robustness to the device while reducing the potential risks.

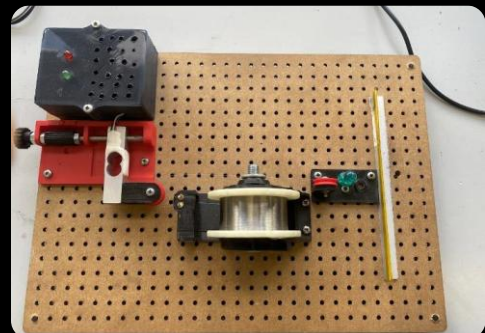
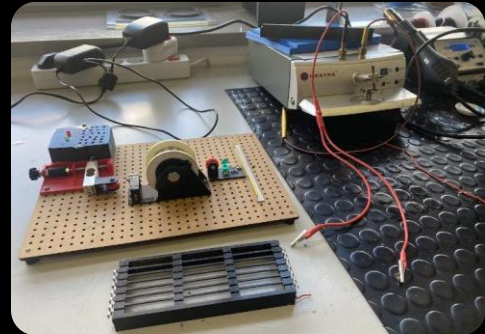
SOLUTIONS






We undertook a comprehensive system upgrade, including the modernisation of the soldering station and the integration of robot programming within the assembly line. Furthermore, we facilitate rapid prototyping, enhancing model durability, quality, and material efficiency.

“

AutoTech 5.0: Smart Factory for Automotive Innovation



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Aerospace & Defense

CMP COMPOSITES



PROJECT

CMP Composites focuses on the development and manufacturing of composite parts using advanced techniques such as filament winding, RTM (Resin Transfer Molding), infusion, and AFP (Automated Fiber Placement). Following a digital transformation and cybersecurity upgrade audit, we decided to apply for the SURE5.0 Programme, to improve our resilience in the face of the cybersecurity. Implementing this programme will not only enhance the efficiency of creating composite infusion plans but also empower employees to focus on innovative and strategic tasks, driving the transition towards Industry 5.0 principles.

CHALLENGES

The main challenge was to improve our resilience in the face of the cybersecurity threat by twinning our two companies, 45km apart, increase our computing capacity and performance, integrate AI to relieve our methods department into repetitive and time-consuming tasks, and pool our management system (ERP).

SOLUTIONS



- (1) Purchase and installation of a Windows-based server on each site;
- (2) Twinning our two sites with an MPLS link and enable a cross-backup system;
- (3) Secure servers premises;
- (4) Installation of data flow monitoring boxes;
- (5) Data encryption, e-mail filtering...;
- (6) Installation of a calculation server;
- (7) Integration of AI and HPC into our calculation.

“

Enhancing the efficiency of creating composite infusion plans



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Aerospace & Defense

COMESVIL



PROJECT

Comesvil is specialised in the design and implementation of radio systems, as well as the creation and installation of safety, signalling, and lighting systems for railways. The transformation plan of Comesvil focuses on improving the company's sustainability and resilience by carrying out two main activities: preparing a report to assess the company's sustainability and compliance with ESG standards; and implementing an ERP (Enterprise Resource Planning) system to improve the efficiency of daily activities such as accounting, purchasing, project management, and more.

CHALLENGES

The main challenge is to increase Comesvil's level of sustainability and resilience to address various constraints, such as rising costs and regulatory uncertainty; a lack of transparency with stakeholders regarding the ESG impact of the production line and products; and the limitations of the current ERP system.

SOLUTIONS



- (1) Sustainability report
- (2) Implementation of an ERP (Enterprise Resource Planning) system: This business management software allows the management of daily activities such as accounting, procurement, project management, risk management, and more, making the business system smarter and more digitalized.



Comesvil aims to become a leader in sustainable transportation by providing reliable and efficient engineering and communication solutions for the railway sector



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Mobility, Transport & Automotive



Electronics

DELTA INDUSTRIE



PROJECT

Delta Industrie is an Italian SME focused on the production of toolholders and various accessories for machine tools. Toolholders are essential components used in all kinds of machining processes, including milling, drilling, turning and grinding. By joining the SURE 5.0 Programme we intend to improve the company's efficiency, but also considers other goals such as human centricity, sustainability and resilience to be incorporated in Delta's operations.

CHALLENGES

The current situation in Delta shows an old ERP system which doesn't ease the company's operations. Way too much time is wasted in searching for information that the system doesn't manage efficiently. Furthermore, it is not possible to fully work on the system, but we had to create parallel Excel and Access applications to make up for the deficiencies in the ERP, adding an extra layer of complexity in the operations.

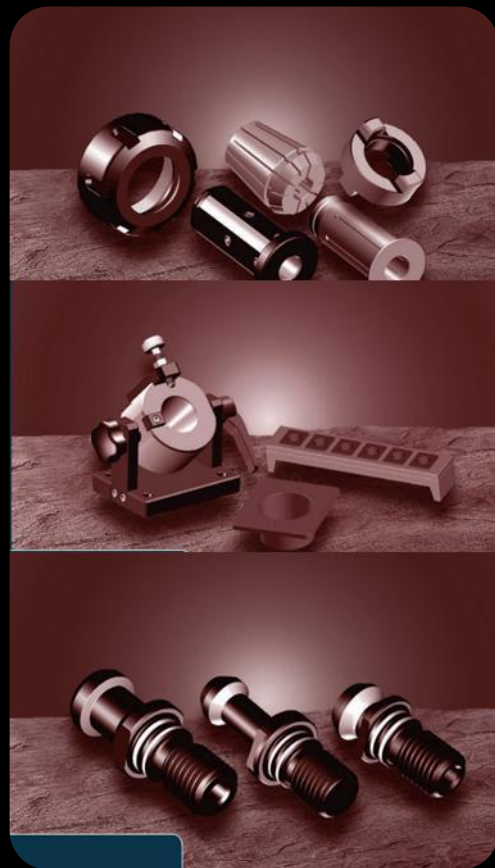
SOLUTIONS



Implementation of a new ERP (Enterprise Resource Planning) system to make processes smoother and help people with the workflow, freeing up precious time to focus on more profitable activities. Each project activity is identified, timed and organised in a specific Gantt chart with the aim to monitor the project's progresses and the commitments to be forecast over time.

“

New ERP system to streamline processes and facilitate workflow



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Mobility, Transport & Automotive

DEMSAY ELEKTRONİK



PROJECT

Demsay Elektronik has initiated a transformation process focused on digitalisation, traceability, and efficiency in its production line. Through a new ERP system, IoT integration, production line optimisation, and human-centric solutions, we are taking a strong step towards Industry 5.0. With SURE5.0, our production processes became more traceable and efficient. The foundations of a human-centric approach were established, and a data-driven decision-making infrastructure was built to support sustainability and operational resilience.

CHALLENGES

Lack of traceability in our production processes, poor machine-to-machine communication, manual error tracking, and an inadequate ERP system revealed our need for digital transformation. We joined the Acceleration Programme to address these challenges.

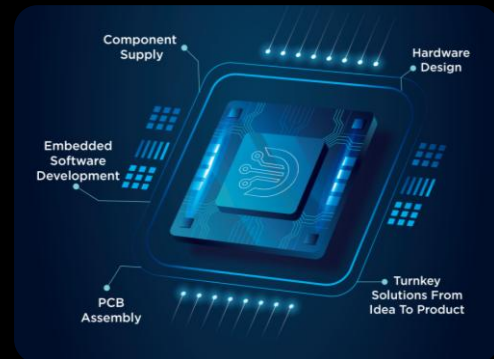
SOLUTIONS



A new ERP system was implemented, IoT devices were integrated into the production line, and machine-to-machine data flow was established. Software gaps between the AOI and repair stations were fixed. Training sessions were held, and the production layout was optimised.



Digitalised production, empowered teams, smart solutions: Demsay's transformation towards Industry 5.0 begins



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Electronics

DRONEMIST



PROJECT

DroneMist was created to revolutionize the building maintenance industry through the strategic integration of advanced autonomous drone technology and AI-driven solutions. Our transformation plan, supported by the SURE5.0 recommendations and our own roadmap, focuses on enhancing safety, efficiency, and sustainability in building façade maintenance, specifically targeting the areas of wall washing, painting and fissure repairment.

CHALLENGES

The project's key challenges include improving the Misty drone's autonomy in complex environments by integrating more sophisticated machine learning algorithms and improved sensor technologies; improving the maintenance system to achieve the desired level of precision in painting and cleaning; and implementing comprehensive repair solutions, ensuring it can handle a wider range of surface imperfections and integrate seamlessly with the main drone system.

SOLUTIONS



As part of the Acceleration Programme, DroneMist has managed to complete Misty 1.0 and to proceed to the manufacturing of Misty 2.0, which will be the market-ready version of the drones. Further work encompasses securing the patent for the proprietary spraying system and performing the testing of the stabilising device (Gimbal).



Revolutionising building maintenance through advanced autonomous drone technology and AI-driven solutions



CONTACT



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Aerospace & Defense

ECLIPSE TECHNICS



PROJECT

The project aims to transform Eclipse Technics' production processes by transitioning from a paper-based documentation system to a fully digitalised, ERP-integrated workflow. This transformation is part of the SURE5.0 Acceleration Programme, focusing on resilience, human-centricity, and efficiency enhancement. Key goals include real-time tracking of production flows, reducing manual errors, and automating quality management processes. By digitising and optimising operations, the project seeks to increase productivity, improve compliance with regulatory standards, and minimise environmental impact.

CHALLENGES

- (1) Inefficiency, high risk of human error, difficulty in maintaining and retrieving records, time-consuming processes, and lack of integration with other systems.
- (2) Inventory inaccuracies, delays in production due to stockouts or overstock, inefficient production planning, and poor responsiveness to changes in demand.
- (3) Reactive quality management, increased rework and scrap rates, inability to predict and prevent quality issues, and lack of historical quality data for analysis.

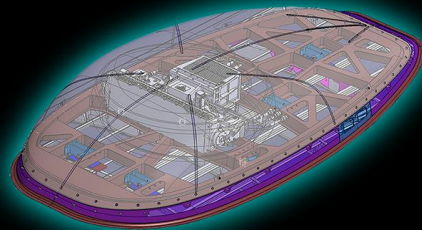
SOLUTIONS



The transformation from paper-based documentation to a digital ERP system to modernize the production plant with lower environmental impact, making it more efficient, accurate, and competitive.

“

Modernising the production plant through the transformation of paper-based documentation to a digital ERP system



CONTACT



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Aerospace & Defense

GO-E



PROJECT

Through the SURE5.0 Acceleration Programme we implemented a Datamining and in-line production traceability project. The objective was to increase the level of automation to increase the traceability of components throughout the entire production process. Additionally, the automated system allowed us to detect real-time errors, significantly reducing the likelihood of defects in the final product. Through the process of Datamining, we will now be able to provide feedback to our development department, our support and production line. We used the program to finally sit together and find human-centricity, sustainability and resilience point that we would like to achieve.

CHALLENGES

The ongoing challenge at Go-e is to increase the level of automation and digitalisation of production processes, especially during the assembly phase. Therefore, implementing traceability measures was crucial to develop systematic and automated processes for assigning errors or identifying deviations.

SOLUTIONS

We developed two main solutions:



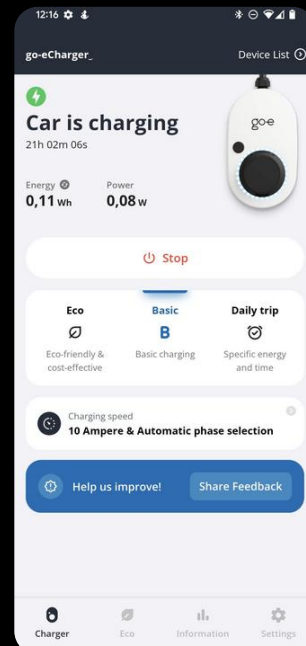
- A Datamining solution, for which we had to invest in computing hardware.



- A traceability solution for in-line production, for which we had to purchase code scanners.

“

Digitalise go-e on 5.0 level



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Mobility, Transport & Automotive

HELLENIC DRONES



HELLENIC DRONES

PROJECT

The ORION project integrates commercial off-the-shelf components (edge computing units, cameras, and telecommunications devices) into a cohesive system that enables aerial object detection and collision avoidance. Installed on manned and unmanned aircraft, it supports fully autonomous flights. The ORION project helped us overcome key challenges while positioning us for sustainable growth. It enhanced our technical skills, streamlined operations, and upskilled our team, boosting resilience and competitiveness in the evolving aerospace sector.

CHALLENGES

Our primary challenge was to enhance our supply chain resilience, as we relied on global suppliers outside the EU. This dependency presented significant risks, especially in the face of unforeseen disruptions. Additionally, we faced limited training opportunities, impacting our ability to strengthen our workforce capabilities.

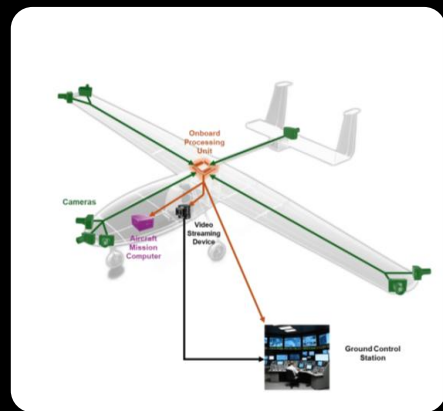
SOLUTIONS



- Review and diversification of the supplier base.
- Integration of a Learning Management System to streamline staff training and support team growth.
- Incorporation of an ERP system that provides advanced analytical capabilities and helps monitor and optimise company processes.



Enabling safe and autonomous flights through smart integration of the ORION system for real-time aerial object detection and collision avoidance



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Aerospace & Defense

HTR-V

HTR

PROJECT

Hellenic Technology of Robotics Venture (HTR-V) upgraded a legacy CNC machine through the EU-funded SURE5.0 program, focusing on human-centric design, sustainability, and smart automation. The project modernized the machine's interface, integrated AI for predictive maintenance, and reduced energy use—aligning with Industry 5.0 goals. The project boosts our technological edge, enabling smarter, greener production. It enhances efficiency, reduces costs, and opens new market opportunities, positioning HTR-V as a leader in sustainable, human-centric manufacturing.

CHALLENGES

We faced outdated CNC technology, poor human-machine interaction, high energy consumption, and limited automation. These challenges hindered efficiency and sustainability, prompting us to join the Acceleration Programme to modernize our systems and align with Industry 5.0 principles.

SOLUTIONS




Outdated CNC systems caused inefficiencies, high energy use, and limited automation. We joined the Acceleration Programme to modernize operations, enhance sustainability, and empower our workforce with Industry 5.0 technologies.


“


Smart CNC,
Sustainable Future
– Powered by
Industry 5.0



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Aerospace & Defense

IGESTEK



PROJECT

The DIGICELL project aimed to implement digital systems to our thermoplastic composites manufacturing work-cell for aerospace industry. We achieved an intelligent and advanced manufacturing environment by getting real-time monitoring, 100% product traceability of process parameters, and great improvement of safety and sustainability. The knowledge and experience gained through this project will be extended to other areas of the company. In this way, a transition towards a more sustainable model, both environmentally, economically and socially, will be achieved.

CHALLENGES

Meeting the new needs faced by the aerospace industry, in particular Urban Air Mobility and UAV sectors, which demand more economical and sustainable production processes with higher production rates and high-quality standards. This requires the use of novel materials and technologies, but also a digital and green transformation of the industry.

SOLUTIONS



We sensorised the production equipment in order to capture process data. Then we enabled machine-to-machine (M2M) communication under IIoT protocols to have a flow of information.

And last we developed and implemented an ad-hoc digital platform to centralise, store and manage process data in real time to obtain a traceability method.



Product traceability, quality guarantee and maximised sustainability for new generation of aircraft composite structures



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Aerospace & Defense

ISTYA AIR



PROJECT

The AMENS project focuses on relocating and semi-automating the production of air quality sensors while improving efficiency, quality, and sustainability. Key milestones include investments in new manufacturing methods, team expansion, and the launch of certification processes. The project aims to improve production processes, reduce environmental impact, and strengthen supply chain resilience through localized manufacturing and sustainable materials.

CHALLENGES

The incomplete integration of advanced technologies limits the ability to fully realize the benefits of Industry 5.0. Extending the use of AI, IoT, and other advanced technologies is necessary to achieve comprehensive digital transformation.

SOLUTIONS

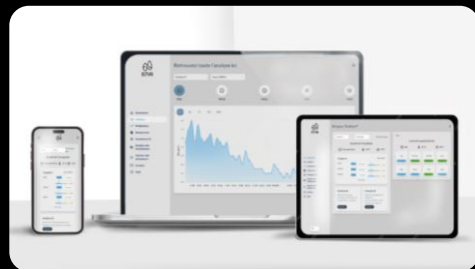


The improvement of industrial processes focuses on optimising assembly workflows, reducing production times, and enhancing quality control measures. A major milestone in this activity has been the adoption of additive manufacturing (3D printing) for certain enclosure components.





In addition to improving manufacturing efficiency, we are integrating IoT-based process monitoring to track real-time production data.



AMENS Project – Advanced Manufacturing for Environmental Sensors



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Electronics

KREIOS SPACE



PROJECT

Kreios Space is a deeptech startup developing an Air-Breathing Electric Propulsion (ABEP) system to enable clean and unlimited operation at Very Low Earth Orbits (VLEO). The advancements developed during the SURE5.0 project were key in the development of the technology, leveraging the use of cutting-edge tools and manufacturing methods to accelerate innovation. The two areas of work are the study of advanced manufacturing capabilities, especially metal 3D printing, for the simplification and agility of prototype manufacturing, as well as the application of Artificial Intelligence algorithms for the automation of the optimisation process of specific components.

CHALLENGES

Main challenges identified: (1) Protracted design stage periods; (2) Reliance on external partners; (3) demand for specialised expertise.

SOLUTIONS



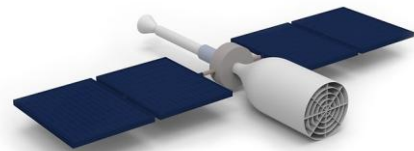
(1) Optimisation through **Machine Learning and AI**: to enhance the design and simulation processes, automate routine tasks, and enable predictive analytics for performance improvement.



(2) **Additive Manufacturing**: to rapidly prototype and customise components, with a focus on metal additive and composite manufacturing.



Revolutionising space propulsion by utilising atmospheric particles as propellant, thereby reducing dependency on onboard fuel and extending the operational lifespan of spacecraft



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Aerospace & Defense

LIÈGES HPK



PROJECT

The primary goal of our project is to modernise a cork manufacturing facility, founded in 1856, and guide it into the era of Industry 5.0. By integrating advanced technologies and digital processes, we aim to preserve our company's heritage while significantly enhancing its operational efficiency. This initiative will enable HPK to evaluate and optimize cycle times in our workshop, with a special focus on workstations where we have identified bottlenecks.

CHALLENGES

Our forecasts indicate a substantial increase in production demands. As a result, it is crucial for us to anticipate these higher output requirements by undertaking in-depth performance studies and implementing strategic optimizations. By proactively addressing these challenges, we will not only improve our current processes but also lay a solid foundation for sustainable growth in the years to come.

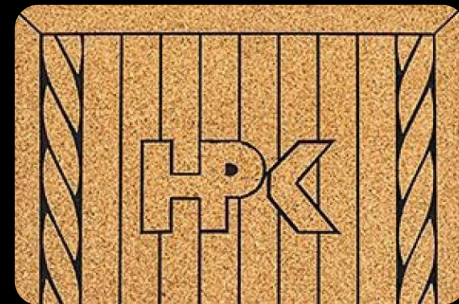
SOLUTIONS



Implementation of a Manufacturing Execution System (MES) to identify critical areas for improvement and provide the necessary tools to evaluate potential investments in our most essential production stations. By capturing real-time data and monitoring key performance indicators, the MES will help us determine where upgrades or additional resources can have the greatest impact.



Modernisation of the cork manufacturing plant using advanced technologies and digital processes



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Aerospace & Defense

LUMETIS



PROJECT

As a young start-up aiming at designing, developing and selling innovative instruments, Lumetis wanted to define the best practices, methodologies and designs possible to grow its economic performances but also get sustainable products while supporting its employees, partners and customers with the higher level of expectations. The SURE5.0 Programme help us define a framework for our business model from a sustainable perspective to bring our products from the design phase to production with as limited an impact as possible on the environment.

CHALLENGES

- (1) Finalising the design of our instruments (including traceability and maintenance) to make them sustainable.
- (2) Finalising design and reglementary tests and documentation according to the EU and the national certifications and regulations.
- (3) Implementing the assembly line with the corresponding procurement strategy.

SOLUTIONS



(1) Reduce environmental impact by reducing waste, lower energy consumption, design standardized parts, modular assemblies



(2) Reduce reliance on specific materials and suppliers making our products less vulnerable to disruptions
(3) Implement a lean production system, a lean procurement strategy and a reparability strategy



Design and develop quality products that will solve real problems by understanding our customers' needs and without negatively impact the environment



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Mobility, Transport & Automotive



Electronics

LUMINOUS LABS



PROJECT

Luminous Labs is focused on integrating modular IoT-enabled solutions into its core product line, emphasizing scalability, sustainability, and resilience. The goal of the project is to develop flexible modular components that can be easily customized, certified, and integrated into a variety of applications. This actionable approach is in harmony with the SURE 5.0 project, targeting not just production but also resilience in sourcing machinery parts and creating a dynamic space for internal ideation and manufacturing, thereby contributing to Europe's march towards Industry 5.0.

CHALLENGES

Resilience, particularly within our supply chain management and prototyping processes, stands as a priority area for Luminous Labs GmbH. We are locked in a delicate balance with global politics and manufacturing constraints that, while difficult, provides an avenue for growth and adaptation. The current climate pushes us to be nimble and versatile, traits that will undoubtedly equip us for a resilient future.

SOLUTIONS



Development of modular components and IoT frameworks, focusing on flexibility and ease of integration. Internal processes have been significantly optimized, and key partnerships have been formed with external experts to validate and refine our designs.



Integrating modular IoT-enabled solutions into product lines, emphasizing scalability, sustainability, and resilience



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Electronics

METRICODE



METRICODE
Technology

PROJECT

Metricode aims to transform metrology technologies, using cloud-based IT and web applications for continuity and flexibility. During SURE 5.0, we advanced the ScaleIT system for remote management and AI-based maintenance. We created MetricodeHUB for remote calibration with AR integration for training and efficiency. Cybersecurity investments ensured continuity, while the platform enhanced technician expertise and reduced environmental impact.

CHALLENGES

Through the SURE 5.0 Acceleration Programme, we aim to become the first in Europe to implement technology for remote metrological controls (hybrid solution). This innovation will impact the European market by changing the current business model, offering faster and more efficient services while reducing costs and environmental impact.

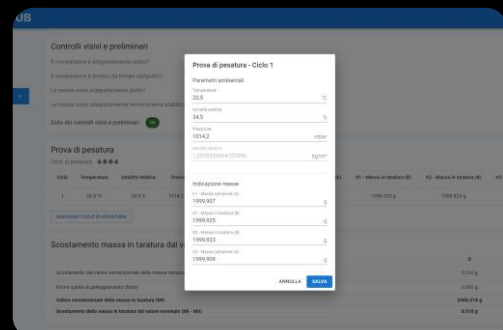
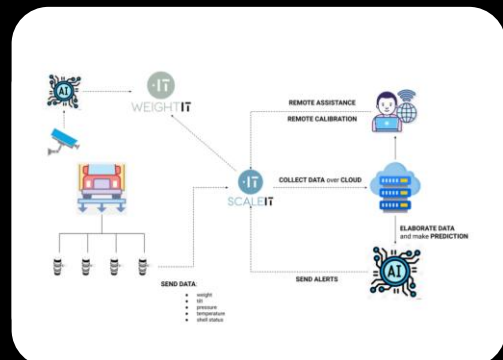
SOLUTIONS



To prioritise human centricity, we collaborate with service providers specialising in human-centric technologies and processes. Our focus includes developing remote work tools, implementing advanced training programs with AR support, and improving employee well-being through ergonomic workspaces and mental health support.

“

Revolutionising metrology with cloud-based solutions for seamless operations, remote control, and reduced supply chain risks



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Mobility, Transport & Automotive

MULTIVATIVE



MULTIVATIVE

PROJECT

In this project, we use our established expertise in rapid prototyping as a basic framework, having already overcome numerous obstacles in terms of automation, rapid set-up and user accessibility for production volumes of 1 to 20 parts. The objective is to deftly navigate the complexities of scaling these solutions to higher production volumes, from 20 to several hundred units. This endeavour presents distinct challenges in several areas: (1) Component sourcing and inventory management; (2) Improving set-up and calibration; (3) Efficient operation and workflow optimization; (4) Production process optimization.

CHALLENGES

The current configuration of our systems presents us with challenges: It requires complex manual calibrations for each board, is not designed for higher volumes and space constraints limit our production capacity. In order to make our electronics development more sustainable and to become independent of external SMD production lines for small series, the expansion of our machine capacity is a crucial step.

SOLUTIONS



We designed an ideal sourcing process and integrated into the inventory/ERP system.



Artificial vision and AI have been used to detect the orientation of components, both loose and on feeding belts. Therefore, we have decided to invest in a new 3D printer, which will be used for the production of these parts in the future.

“

All-in-one-system
for electronics
prototyping



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Electronics

OTTRONIC



PROJECT

Ottronic is a high-tech company in a rural and structurally disadvantaged region facing the challenges of the current economy, such as high labor-costs and a lack of trained employees, combined with a high-mix and low-volume production of technologically advanced product. Within the SURE5.0 Acceleration Programme, the main objective of Ottronic is the Human-centered automatization of stator winding process for a high-mix and low volume production.

CHALLENGES

To produce our slotless BLDC drives/stators nearly all production processes are done manually. Thereby, especially, the winding of the stator coils is a very specific and critical step and is strongly dependent on a few employees are having this kind of very specific know-how, how to place the wire exact for the winding process to ensure the high quality which is necessary for medical devices. Furthermore, no machine data is used reactively in these processes; thus, data processing is based on human effort with little to no automation.

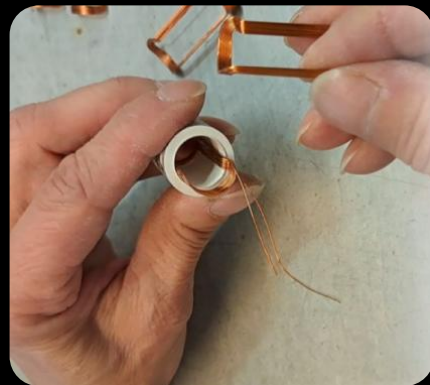
SOLUTIONS



During the automation transformation the focus will be laid upon the human-machine interaction and vice-versa. Through an increase human-machine interaction the available knowledge of some experienced employees can be multiply and technological advantage can be kept within the company.



Human-centred automatization of stator winding process for a high-mix and low-volume production



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Electronics

PROTOM GROUP



PROJECT

PROTOM is a cutting-edge company in the engineering sector, specialising in creating innovative solutions for different industries. Through its two business units, 'Smart Manufacturing' and 'Advanced Engineering,' PROTOM offers customised products and services, supporting customers throughout the entire product lifecycle. To address the challenges posed by new regulations, PROTOM has decided to implement a Sustainability Report. The document and the strategy stemming from it will be crucial for clear and transparent communication with its stakeholders, enhancing trust and transparency. Further, it will provide a detailed view of the strategies and actions taken in the ESG (Environmental, Social, and Governance) domain, highlighting the company's efforts to improve sustainability.

CHALLENGES

Within its Transformation Plan for Industry 5.0, PROTOM aims to enhance the compliance of its activities with emerging new regulations and standards, such as the CSRD (Corporate Sustainability Reporting Directive) and the Green Taxonomy.

SOLUTIONS



The creation of the sustainability report is carried out in 3 phases: (1) Regulatory framework analysis of European legislation; (2) Verification of the company ESG compliance; (3) The sustainability report will then be compiled according to international Global Reporting Initiative (GRI) standards.



Implementation of a Sustainability Report to address the challenges posed by new regulations



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Electronics

QUANTA & QUALIA (MAGOS)



PROJECT

Quanta & Qualia (Q&Q) is a pioneer in advanced human-machine interaction with a focus on haptic technology for VR training. Magos, Q&Q's flagship product, is a lightweight haptic exoskeleton that is vital for professionals such as Industry 5.0 workers. This project aims to boost the modernisation of the design and manufacturing of Magos haptic solution with advanced technologies.

CHALLENGES

- (1) Resilience of the Supply Chain: our focus area is procuring PCB assembly services from trusted providers to maintain the quality and reliability of our product, Magos VR haptic gloves.
- (2) Optimising Production Efficiency: design for manufacturing and procedure enhancement for cable harness in production of Magos gloves aim to enhance sustainability by improving efficiency and reducing waste throughout our production process.
- (3) Strengthening the Test Procedure: Training programs aimed at supporting a more reliable QA procedure will be led by our workforce.

SOLUTIONS




- (1) PCB review and validation.
- (2) Wireless communication optimisation.
- (3) Assembly and cable harness optimisation.
- (4) Production and testing efficiency.

“

Modernisation of the design and manufacturing of Magos haptic solution with advanced technologies



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Electronics

QUANTUM LEAP



PROJECT

Quantum Leap aims to significantly increase its 3D printing production capacity to accommodate larger orders while reducing dependency on third-party suppliers, particularly from China. Currently, the process is entirely manual, slow, and highly meticulous. The primary objective of this project is to invest in an industrial-grade 3D printer capable of producing protective cases for electronic components with greater speed and precision. The units that come out of the printer will go directly to the curing and washing unit, which is why a robotic arm is needed, which will enhance operational efficiency and reduce errors.

CHALLENGES

Our main challenge is to anticipate improvements in production processes and operational efficiency, increasing production capacity, reducing errors and optimizing energy consumption, supporting the company in meeting growing market demands and sustainability goals. In social terms, reducing manual and repetitive tasks will increase safety and job satisfaction.

SOLUTIONS






Industrial-grade 3D printer capable of producing protective housings for electronic components with greater speed and accuracy using a robotic arm to do process repetitive work.

“

Humans to think and develop,
Automations to manufacturing



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Electronics

RAYMETRICS



PROJECT

The project aims to enhance Raymetrics' AI capabilities, production efficiency, and infrastructure optimization by integrating AI-driven customer support, optimizing workflows, and improving hardware performance for LIDAR systems. The project drives Raymetrics' growth by integrating AI, enhancing software and maintenance processes, and applying Lean, Agile, and Six Sigma. It improves productivity, quality, and employee skills while promoting energy efficiency and sustainability, positioning the company as a leader in Industry 5.0.

CHALLENGES

Limited access to necessary tools and technologies lead to delays, reduced product quality, and increased costs. Addressing these deficiencies is crucial for enhancing the overall efficiency and effectiveness of manufacturing operations.

SOLUTIONS



- (1) Developing AI-powered chatbots.
- (2) Optimising production through process management tools (Jira) and Lean methodologies.
- (3) Conducting thermal behaviour studies on LIDAR infrastructure to improve reliability.
- (4) Assessing and upgrading IT infrastructure to support AI implementation.

“

Smarter Systems,
Sustainable Future:
Empowering
Raymetrics Innovation
with Industry 5.0



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Aerospace & Defense

SYLPHAERO



PROJECT

Sylphaero, a French startup, is pioneering the development of the world's first fully electric jet engines to support aviation decarbonization efforts. Currently, our focus lies in validating the feasibility of our engine concept through a proof-of-concept phase. As part of the SURE5.0 Acceleration Programme, our project is to improve our current supply chain and internal manufacturing processes on resilience and sustainability, under the Industry 5.0 principles.

CHALLENGES

The top 3 challenges identified are:

- (1) Time and quality of ceramic parts and metal 3D printing manufacturing in China, especially quartz, and difficulty to source more local solutions that fits our delay/quality/cost constraints.
- (2) Sustainability of the supply strategy and the manufacturing process.
- (3) Quality of the sintering process.

SOLUTIONS



(1) Design and implementation of a new supply strategy for the materials and parts with the right balance between local and cost-effective procurement.

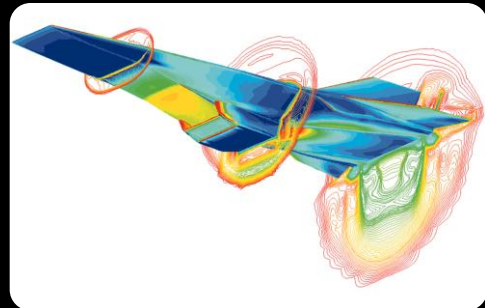


(2) Design of a first version of the manufacturing line and the future production facilities, considering the environmental aspect.

(3) Development of a digitalised sintering process, integrating tools for simulation.

“

Pioneers in the development of the world's first fully electric jet engines to support aviation decarbonisation efforts



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Aerospace & Defense

TECH TRINITY

PROJECT

Tech Trinity produces Non Destructive Testing (NDT) testing equipment and Machine Learning for NDT. In this project we are improving our workers' knowledge, existing processes and introducing new quality control procedures. We are also improving our offer for investors, searching for sales and integration channels and introducing new technologies. Through SURE5.0 Programme, we gained access to mentoring, and hands-on tools that helped us enhance Industry 5.0 procedures and the investment strategy. We improved the human dimension of our company — ensuring that our products and processes are designed with the well-being of employees, customers, and stakeholders in mind.

CHALLENGES

We face regulatory challenges, financial sustainability challenges, and challenges in better understanding our workforce (human-centricity). We haven't integrated IoT into our processes and lack adequate quality processes.

SOLUTIONS



We started the process of ISO accreditation and submitted two patent applications.

We got Digital Product Passport.



We implemented new Machine Learning algorithms that are significantly saving our energy footprint and introducing bases for AR and MR solutions. We implemented full control of our environmental footprint and reduced it more than 40%.

“

Getting Digital Product Passport for all products and establishing top of the range Machine Learning capabilities



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Mobility, Transport & Automotive

T.I.P.S. MESSTECHNIK



PROJECT

T.I.P.S. is specialised in probe cards technologies / applications, test boards and mechanics. As part of the SURE5.0 Acceleration Programme, we have initiated a transition to a next level Industry 5.0 driven high-technology company. The objective is to transform our processes in a human centric approach, increasing resiliency and becoming more sustainable through operational excellence, and highest security standards.

CHALLENGES

- (1) Reduction of complexity: a high variety of products and variation of processes goes hand in hand with issues in mapping manufacturing and administration processes through digital services and tools.
- (2) Lack of human centricity in industry 5.0 technologies: we need to include workers, managers, and customers and all the relevant other stakeholders on all levels in the 5.0 transition process.
- (3) Gaps regarding awareness and mindset: we want to focus on the improvement of the mindset of people. It is crucial that not only technology is built to serve the people, but it is also as important that these people use the latest tools and technologies provided.

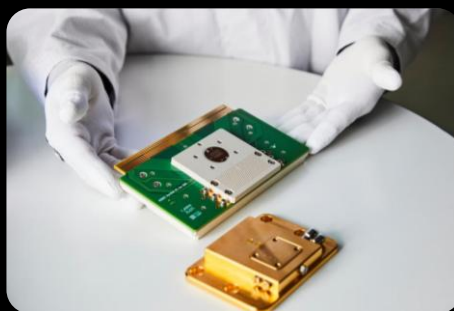
SOLUTIONS



Improvement of UI/UX and human centricity in our Project management system; introduction of the holistic TIPS Manufacturing system; integration of new cybersecurity measures to increase the resilience; integration of suppliers and customers into this project and process.

“

Your specialist for
probe cards
and test interfaces



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Electronics

TURNCIRCLES



PROJECT

Our project is focused around enhancing electric motors with advanced IoT capabilities, integrating cutting-edge technology to create smarter, more efficient systems. This initiative is driven by the increasing demand for connected devices that can provide real-time data and insights, allowing for more effective monitoring, maintenance, and optimisation of industrial equipment.

CHALLENGES

The main challenges are related to parametric modeling and CAD automation, but our team is actively addressing these issues. We are confident that the advancements made thus far provide a strong foundation for achieving our project objectives and delivering a successful outcome.

SOLUTIONS







- (1) Integrate sensors into electric motors to enable real-time data collection and monitoring.
- (2) Utilise AI-driven analysis to predict maintenance needs and improve motor performance.
- (3) Streamline supplier integration to enhance efficiency and reduce costs.
- (4) Optimise product design for better functionality and reliability.
- (5) Develop a robust cloud infrastructure to support data processing and collaboration.

“

Enhancing electric motors with advanced IoT capabilities



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Electronics

UDX AERO



PROJECT

The project aims to advance development, integrate space technology, and optimize performance for real-world applications of Airwolfm, a next-generation hoverbike. It is an eVTOL designed for personal flight, urban mobility, and rescue missions. Combining tilting motors with compact wings, it offers extended range and efficiency. This project strengthens our technological foundation, enhances credibility with investors and stakeholders, and brings us closer to a full-scale prototype.

CHALLENGES

Key challenges include optimizing the aerodynamics and control systems for stability, securing investment for full-scale development, and navigating regulatory hurdles. The SURE5.0 Acceleration Programme offers expertise and resources to overcome these barriers and accelerate Airwolf's path to commercialization.

SOLUTIONS



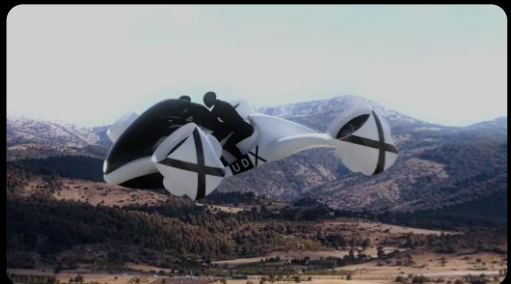
We have partnered with top research organizations and universities, allowing us to initiate a strategic redesign to enhance product reliability, performance, and scalability.



We have adopted more sustainable materials and optimized energy efficiency, while improving resilience through strategic planning, risk mitigation, and regulatory alignment.

“

Airwolf – The
Supersport Bike
for the Sky



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Electronics

VISIGN



PROJECT

Visign Space operates in the field of space craft design and production. They are a small company with different products and services they provide. The main focus is on nanosatellites and their physical parts, both mechanical and electronical. Visign Space designs and builds enclosures, frames and PCBs for satellites. The main objective for this project is to reduce the amount of waste generated because of faulty design and manufacturing of satellites. Visign Space aims to use 3D printing to solve this problem. The initial approach is focused on metal printing and trying to tackle challenges in that manufacturing process.

CHALLENGES

The porous and sometimes unpredictable structure and density of metal are the main problems to be solved. The solution is changes in design and merging different functions. For example, the structural support module can also be used as a heat sink.

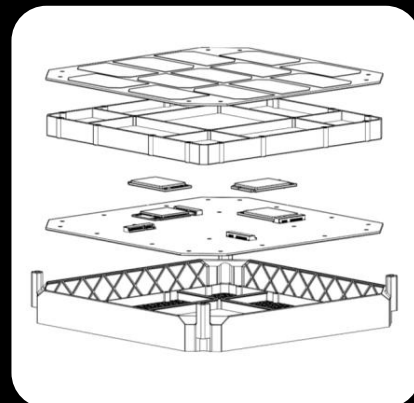
SOLUTIONS



- (1) Designing and manufacturing the first 3D printed parts for the nanosatellite.
- (2) Technical analysis of the material, manufacturing processes, and 3D printers available.
- (3) Initial parametric model of a satellite which enables mass customization in a quicker and easier way.

“

3D printing to reduce the amount of waste generated because of faulty design and manufacturing of satellites



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Electronics

ZINCADURA BOTTER



PROJECT

Zincatura Botter is an Italian company specialising in surface treatment. Over the years the company has carried out multiple types of processes such as chrome plating, nickel plating and galvanising, eventually stabilising on the latter. The transformation plan concerns the adoption of a new management system that guarantees the integration of information between the various departments, thus allowing process management times and costs to be reduced; to achieve this purpose, a flexible, intelligent and much more performing software than the one currently in use was identified, with also the possibility of being used in cloud mode.

CHALLENGES

- (1) The training of staff to learn how to use the new management program and the tools linked to it.
- (2) The transition from the currently management software to the new one.
- (3) The need to strengthen the internal internet network and add signal repeaters.
- (4) The adaptation to the new warehouse program of the material to be processed.

SOLUTIONS



Management software to centrally and efficiently manage the information coming from the various departments of the company, whether they are directly involved in the production process or in the administrative one.

“

New management software to centrally and efficiently manage the company information



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Mobility, Transport & Automotive

WHAT SMES SAY? QUOTES

SURE5.0 provided us with tools to prioritise employee development, integrate sustainable practices in tire safety and performance, and adopt a more resilient, future-oriented approach. Through expert guidance, we strengthened our alignment with Industry 5.0 principles, fostering long-term innovation and responsible growth.

MEGARIDE - Acceleration Programme I

We can recommend the SURE5.0 funding to every SME because the added value is significant. This concerns strengthening the company's strategic orientation on the levels of sustainability, resilience and human centricity. Also, we had concrete business effects, such as a massive increase in knowledge and cost savings in after sales support.

NET AUTOMATION - Acceleration Programme I

The SURE5.0 project was a key to help the company first to recognize their needs and identify solutions, then to find specialized help to select the right solution for these needs, and finally to support its implementation cost.

ARTZAINAK - Acceleration Programme II

The Acceleration Programme first allowed us to define and clarify the principles of sustainability, resilience and human-centricity so that we could concretely and from the very beginning integrate them in our development plan. It provided us with a personalised guidance from our reference partner which gave us a very useful working framework. And last but not least, it financially supported our young start-up, helping us to implement sustainable practices..

LUMETIS - Acceleration Programme II

The training and support from SURE5.0 enabled us to overcome our AI challenges and optimize the system, improving the overall production process and providing valuable feedback to workers for more effective failure analysis.

CISC SEMICONDUCTOR - Acceleration Programme I

We gained access to mentoring, and hands-on tools that helped us enhance Industry 5.0 procedures and the investment strategy. We improved the human dimension of our company—ensuring that our products and processes are designed with the well-being of employees, customers, and stakeholders in mind. SURE5.0 helped us strengthen our resilience. We've begun implementing various lean processes and digital transformation initiatives.

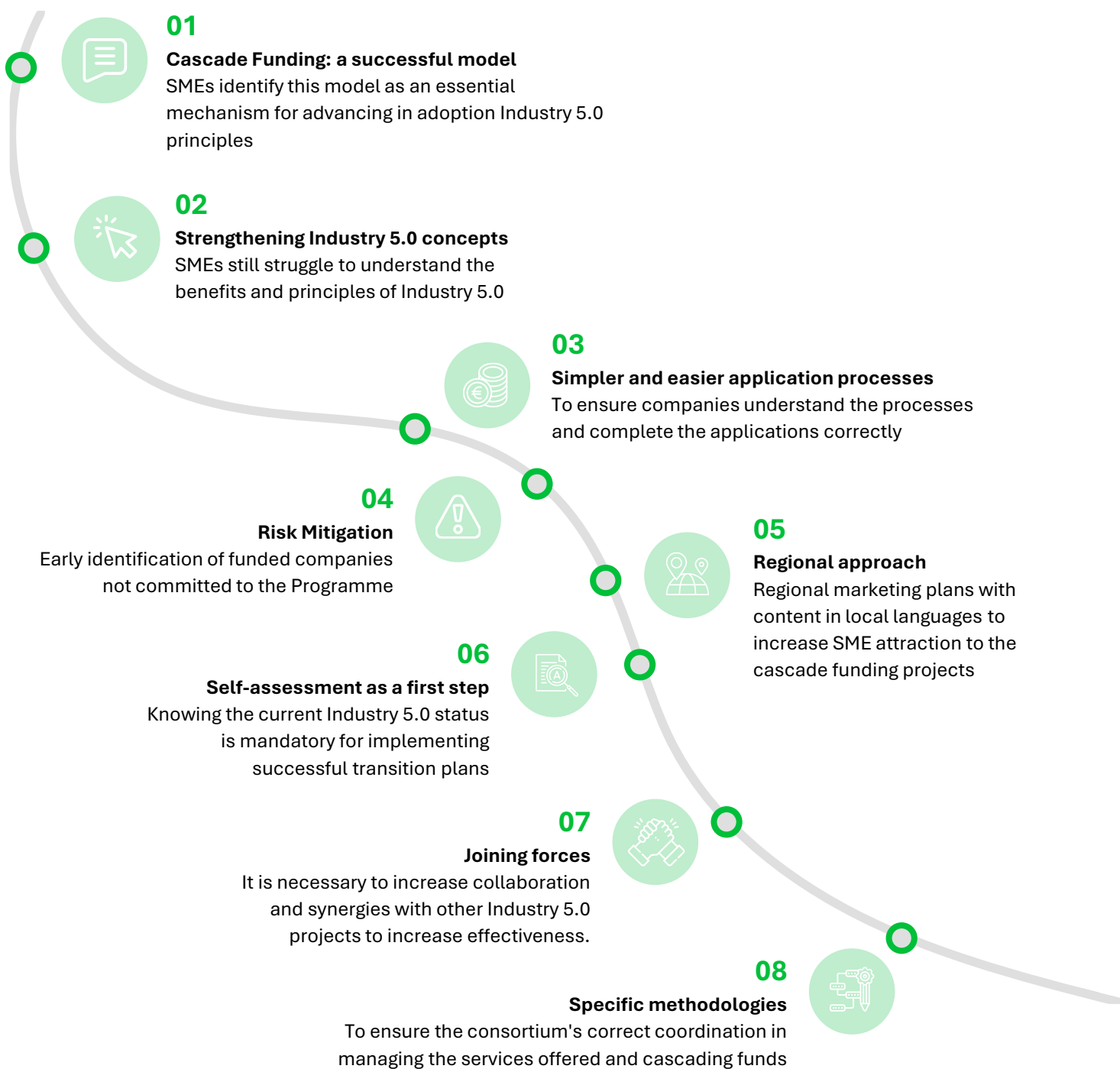
TECH TRINITY - Acceleration Programme II

Overall, the SURE5.0 Acceleration Programme has contributed to enhance our capabilities which will permit us to grow and implement key changes in future manufacturing stations. Thanks to this Acceleration Programme, AvioConvert will be able to embark new technologies in a modular way and to demonstrate sustainable management of the whole system in order to offer leading-edge capabilities to a great number of companies and research organisations.

AVIOCONVERT - Acceleration Programme II

8 RECOMMENDATIONS FOR PROMOTING INDUSTRY 5.0 THROUGH EUROPEAN PROJECTS

Based on the experience gained throughout the project, the consortium has identified the main lessons learned, problems, and difficulties encountered in supporting the 5.0 transition of the SMEs involved. This analysis can be summarised in 8 main recommendations that will be useful for future European projects or similar initiatives focused on Industry 5.0:





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