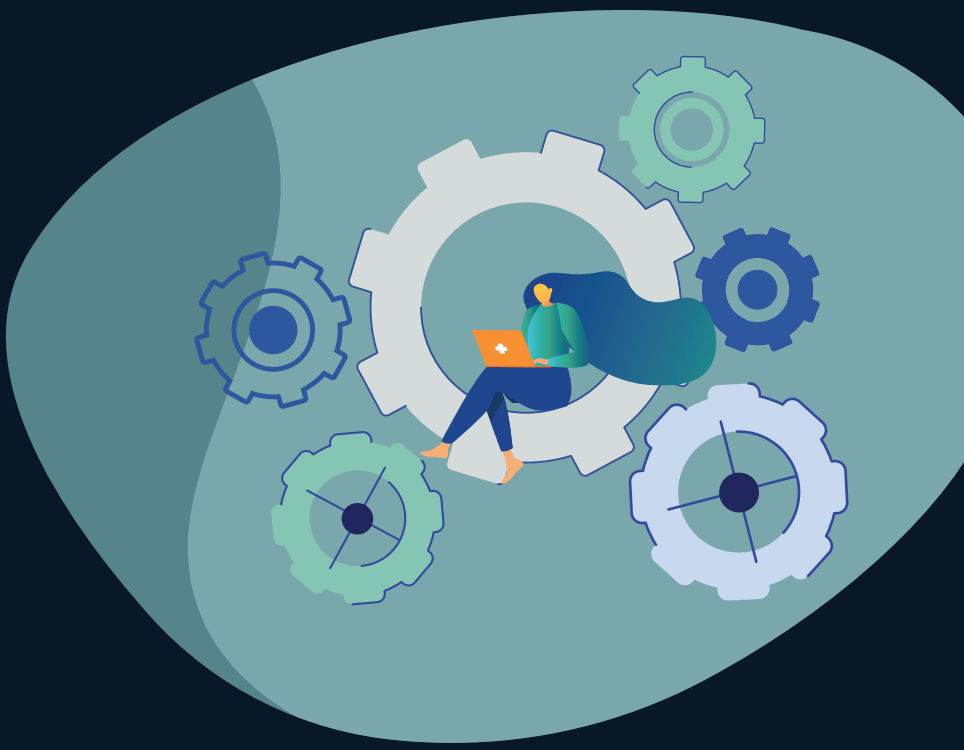
EUR3KA

in alliance with

DFA TRANSFORMING MANUFACTURING TOGETHER

Manufacturing as a Service Network for Fast Pandemic Reaction

RESILIENT - RELIABLE - REPURPOSING



WHAT

The Eur3ka - European Vital Medical Supplies and Equipment Resilient and Reliable Repurposing Manufacturing as a Service Network for fast Pandemic Reaction - will be repurposing the manufacturing for vital medical supplies and equipment. Enhancing personal skills, new industrial value chains, service innovation, technological innovation, innovation methodologies, process innovation to fight Pandemics like Covid 19.

Eur3ka will deliver a trusted and unique capability to plug and collectively respond to a sudden increase in demand in a coordinated and effective manner at an unprecedented scale.

Eur3ka's vision builds on and accelerates current digital transformation industry4.0 efforts, as well as flexible regulations and tailored workforce re-/up-skilling.

One measure that can be observed across industries and countries is companies repurposing their production and R&D capabilities to support the fight against COVID-19. For example, luxury brands are switching production lines from producing perfume to making hand sanitizer, industrial companies are making hygienic masks, luxury hotels are becoming quarantine centres, distilleries are creating disinfecting alcohol, and automotive companies are evaluating options to producing urgently needed medical devices such as ventilators.

STATEMENT

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ENGINEERING
THE DIGITAL TRANSFORMATION COMPANY

Eur3ka project developed a fast response to global value chain disruptions and outbreaks through a coordination and manufacturing repurposing management platform **(Coordination Platform)** capable of providing a **Plug & Respond** (P&R) environment for adherent entities, which will allow for Global Initiatives and enterprises to join and/or contribute as partners, thus, enlarging the Eur3ka assets catalogue in an integrated digital workspace.

The **P&R Network** consists in a group of networks which main goal is to gather and interconnect providers and consumers of health products so that the demand for goods can be covered in moments of crisis, in a fast and reliable manner. Inside of the P&R, there are four different networks (Q-Med Tech, Smart Factory Web, Smart Connected Supplier Network, Additive Manufacturing Network) that coexist of a Resilient Data Space where information can be transferred among participants in a trust and secure way so the users who have access to this Coordination Platform also have access to certified, and ready for manufacturing, health products.

Eur3ka's outcomes are part of the **Manufacturing Global Response Initiative** (MGRI), a lighthouse initiative of the **Digital Factory Alliance** (DFA) which aims at network transformation by establishing monitoring, preparedness and production repurposing networks for rapid response against value chains disruptions. The DFA initiative aim at modernizing and digitalizing the assets of the factories of the future and, in this regard, the Eur3ka's outcomes will improve its offering enhancing the availability of services and solutions in the smart health and smart manufacturing fields.

Key Exploitable Results

1 | Optimized CO2 machine

The CO2 machine is a device that allows to verify how much CO2 remains trapped in the full-face masks after one breathing cycle. This machine is therefore very useful for diving companies, but not mandatory as FF-masks do not have regulatory requirements on breath parameters. However, testing with this device allows for a higher quality product and increase the safety. The upgraded machine reduces testing times, then it is able to store data in a digital way, indeed it is possible now to analyze different masks models through testing parameters; finally, the machine can be rented out to competitors thanks to its digitalization level.

www.seacsub.com/it www.stamtech.com

2 | Optimized ANSTI Machine

This testing equipment, necessary for conducting specific tests on regulators and FF-masks, was built by third parties and for this reason, the software parts are not editable. Moreover, the test output were only in pdf format, then useful for a deeper analysis. This equipment is generally a must-have for companies in the diving industry like SEAC because it allows checking some parameters of mask adherence and correct breathing cycle effort. Therefore, a tool was created to install on SEAC operators PC, which allows digitalizing the output of the machine, making it compatible with data analysis platforms.

www.seacsub.com/it www.stamtech.com

3 | Test Data

This key exploitable result concerns a database that, thanks to the digitalization of the ANSTI and the CO2 machines, will be populated with test results. As FF-masks still lack regulations in terms of respiratory parameters, this database aims to become the standard for the FF-masks market for scuba market and health related FF-masks market. Therefore, this database can also be used for FF-masks adapted with breathing filters to enable standards bodies to define standards for such products.

www.seacsub.com/it www.eng.it/en

www.stamtech.com

4 | Measuring Machine Automation Service

The present KER was born as a result of the collaboration with SEAC. In fact, STAM during the project had the opportunity to upgrade twoof their testing machines (the so-called CO2 machine and the ANSTI machine), and through the project development, acquired a high level of knowledge in the integration of sensors, digital measuring tools, and web interfaces. This machinery revamping service, whether for testing or other equipment, can be easily sold to all manufacturing companies at lower costs than purchasing a new machine. STAM will improve its know-how in sensorizing and integrating complex measuring and testing machines. This service will be sold to manufacturing companies and test laboratories.

www.stamtech.com

5 | Context-Awareness Dashboard

The Context-Awareness Dashboard is a business analytics suite for Big Data analysis and visualization producing valuable and meaningful insights. It includes a variety of features, such as data federation, mash-up, data/text mining, and advanced data visualization, that allow for a focus on data-driven analytics processes. This solution is designed to handle and process large volumes of data, generating reports and general-purpose dashboards that can be customized for different users and in different application domains.

www.eng.it/en

6 | Manufacturing Repurposing Framework

Through an empirical case study approach, we present a two-layer framework to guide practitioners in identifying the enablers and barriers to manufacturing repurposing. Through the utilization and application of this framework, they are guided in rethinking the existing operations and shaping their strategic approach.

Since this framework is built through the causal-loop diagram approach, practitioners can better understand the underlying relationships between the different enablers and barriers and obtain a structured approach to manufacturing repurposing activities.

www.ethz.ch/de

7 | COVID-19 Shift Allocation Service

The COVID-19 Aware Shift Scheduling Service is a software solution that provides a smart shift allocation system for businesses during the COVID-19 pandemic. The software allows operators to define production plant departments and assign employees based on their skills. The departments can be divided into sectors to ensure appropriate social distancing measures during a shift. The software automatically assigns employees to sectors and shifts according to their skills, with support for morning, afternoon, night, and emergency shifts.

The software also includes additional features based on user feedback, such as an emergency disruption declaration form to address manufacturing line disruptions and an employee upskilling capability to define training programs for employees. Overall, this software solution aims to maintain business continuity while preventing the spread of COVID-19 among staff workers.

www.netcompany-intrasoft.com

8 | Smart Matching and Mediation App

The Smart Matching and Mediation App extends the standard search functionality of a marketplace to include not only static information such as capabilities, but also dynamic data such as price, availability, risks, etc.

www.iosb.fraunhofer.de

9 | Digital Quality Management Platform

The Eur3ka project is implementing advanced functionalities and options to the M3 software, which is a powerful tool for surface inspection that works by point cloud segmentation. It lets users analyze the dimensions of an object and compare it to the original CAD design. It can be done in real time or offline. Some of the new features integrated directly to the M3Workspace platform are going to let users manage documentation, measure projects and parts, work with metrological and statistical reports, or even get an insight of the data generated.

www.innovalia.org

10 | Digital Factory Alliance Services and MGRI implementation

The Digital Factory Alliance (DFA) is a platform created to support the digital transformation of the manufacturing industry and it serves as a dissemination and exploitation vehicle for R&D projects' results by providing specific services to its members. Within these services, the Plug & Respond Network – developed in the Eur3ka project – is offered as a Manufacturing as a Service Network for health products in crisis scenarios. The DFA also offers access to unique innovation marketplaces, standardization processes, information and events relevant to the digital manufacturing arena.

www.innovalia.org | www.eng.it/en

www.teknologisk.dk | www.tno.nl/en

www.sqs.es | www.plm.automation.siemens.com

11 | SCSN – Smart Connected Supplier Network

The Smart Connected Supplier Network (SCSN) is a data standard that aims to improve the efficiency of information exchange within the supply chain of manufacturing companies. It enables companies to share data easily, quickly and reliably, simplifying the data sharing process within the entire supply chain. SCSN messages can be automatically processed in the Enterprise Resource Planning (ERP) system of a connected company, resulting in higher productivity within the supply chain through fast, secure and interoperable exchange of information between companies. The SCSN network is designed according to the fourcorner model and is managed by the independent SCSN Foundation.

www.brainportindustries.com/de | www.tno.nl/en

12 | Knowledge Sharing – Supply Chain Resilience & Resilience Thinking

Brainport Industries is a consortium of tier-one, tier-two and tier-three suppliers in the open High-Tech supply chain of the Netherlands. Its members are the actual companies involved in a lot of the supply chains which have been affected by the COVID-19 pandemic and which have shown an adequate response to the rising issues during the pandemic. Therefore, their first-hand experiences and their insights were very useful for designing the future approach of similar issues. This information was obtained by initiatives like the "Resilience Leading Group", a group of manufacturing companies we have formed, and "Use Cases of Supply Chain Resilience during the COVID-19 pandemic". Brainport Industries aimed at conveying the information and knowledge gained during the Eur3ka project with her members. Additionally, in close collaboration with TNO we have progressed Supply Chain resilience with the SCSN platform. By focussing on the need for optimal data & information sharing.while preventing the spread of COVID-19 among staff workers.

www.brainportindustries.com/de | www.tno.nl/en

13 | Component Recommendation Engine

Tool to allow users to use the results of the Eur3ka project to help them to compose their own solutions for their specific need/problems.

www.unparallel.pt

14 | Risk Assessment Engine

The Risk Assessment Tool has the purpose to help the users evaluate the existing risks, for example in the case of repurposing and reconfiguration of the production lines regarding COVID-19. This tool contains details like, plant size, distance between workers or number of bathrooms and if any of these parameters changes it is necessary to evaluate once again the risk.

www.unparallel.pt

15 | Manufacturing Repurposing Framework

The Atos Trustcenter is the component in charge of managing the certificates that will allow the different companies to operate securely and reliably, enabling them to verify their identity in the industrial data spaces within Eur3ka. The Atos Trustcenter operates as a Certification Authority, providing certificate publishing services, lists of revoked certificates and certificate validity checking. The PKI portal, a subcomponent of the Atos Trustcenter enables graphically the management of the certificates organised into organisation and groups. The Trustcenter is a key element within the Eureka project guarantying the identity of an individual, organisation, user, device, connector, or server in the creation of Eur3ka Data Spaces.

www.ethz.ch/de

16 | Digital Transformation Analysis Tool

The 6P methodology has been developed as an assessment tool tailored on the project requirements in terms of repurposing coordination framework and workforce qualification. More in detail, the tool is focused on performances assessment aiming at evaluating how a set of specific performances (e.g., economic, environmental, social, supply chain etc.) are currently monitored and how their monitoring has been changed across the project to improve the resilience of companies. In addition, also an assessment tool has been developed specifically focused on the workforce looking at the profiles and related skills needed to make companies be more resilient.

www.polimi.it/en

17 | Digital Machine Development

Stevanato Group, after purchasing a production machine in the pharma/medical sector, is able to offer a Digital Twin service to its customers. This service is conducted using Digital Twin technology to identify and address potential challenges before the machine is put into use. This service will also reduce the need for sample materials during the machine's testing phase.

www.stevanatogroup.com/en

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