

RaRe² 1st Press Release

RaRe² Project | Human-centred Rapid Reconfiguration of Production and Value Chain in Fast Changing Scenarios

The RaRe² project has officially begun, with the goal of revolutionizing the manufacturing industry by creating a resilient and adaptable ecosystem to confront challenges. Recent global crises, such as COVID-19 and Russia's war on Ukraine, exposed vulnerabilities in supply chains and production capabilities, emphasizing the need for reconfigurable manufacturing systems. The project aims to reshape the manufacturing core and address market needs efficiently.

Goals and Objectives

The global objective of RaRe² project is to create a flexible and resilient Holistic Ecosystem Platform, enabled by the interaction among many European organizations interested in cooperating in the fast reconfiguration of process chains, through collaborative systems and adaptable workforce up-skilling.

RaRe² will help make the European manufacturing landscape sustainably robust to unexpected market changes, sudden disruptions, legal changes, or any kind of crisis and changing scenarios, climate and weather related. To achieve this, RaRe² has set out several strategic and operational objectives, which are based on the universal interpretation of a reconfigurable manufacturing system.

They include on the one hand innovative digital solutions, and on the other hand knowledge about standards and methodologies which can support the quickness in reconfiguration. In addition to this, these solutions can enable the possibility to reach certification at early stages.

The Platform

The **RaRe² Holistic Ecosystem Platform** will enable a generation of a green wave, that will be able to early detect an upcoming issue, alert the decision maker and quickly propose simulations about potential new destinations (adjacent reasonable sectors and products), new routes (how to produce it, with internal reconfiguration and supply chain involvement), the plan to put the change in place and the expected speed of each connected node of the new route.

The key pillars on which RaRe² is based are:

1. **Early detection** of reconfiguration needs, based on structured and analyzed data coming from different internal and external sources and combined thanks to Artificial Intelligence (AI) technologies.
2. **Smart connection** of physical and logical elements in order to **rapidly adapt products, processes and supply chain** to the changed situations.
3. **Empowering and up-skilling of humans** to let decision makers be able to make fast and concrete decisions about the reconfiguration of the system and about the fast ramp up of the workforce, and workers to quickly learn a new job.

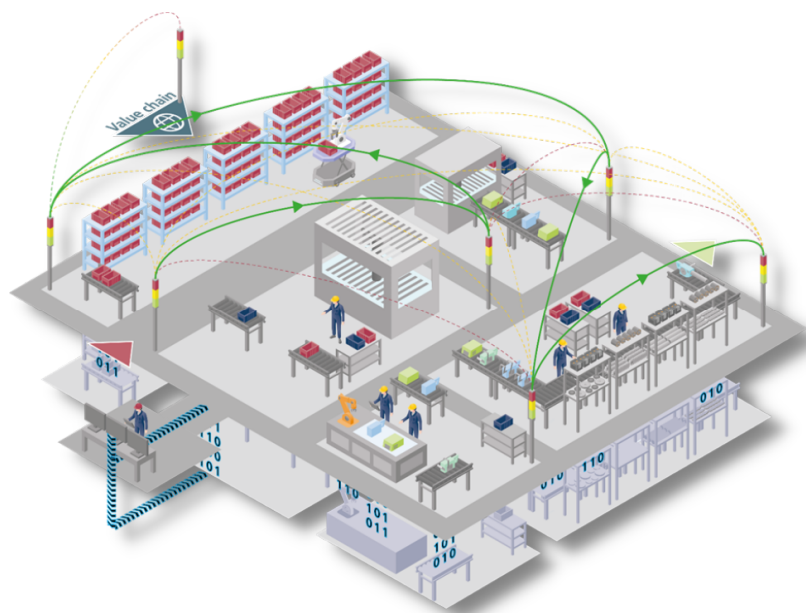


Figure 1- Green wave concept in RaRe² Project (illustrated by Valerie Frenzel Fraunhofer IWU).

Use Case Demonstrations

The concept presented on the project will be demonstrated and validated on realistic use case demonstrations. Before the application on real industrial environments, the technical and methodological developments will be tested in single-objective controlled laboratory demonstrators by RTD partners. Then, the outcome will be validated in four relevant industrial scenarios:

1. Modular sterilization units.
2. Production of car body parts.
3. Production of child seats and face masks with recyclates.
4. Prescription contact lens manufacturing.

In addition to the industrial scenarios, the EcoSystem CoCreation Demo case via which the complete value chain will be included to demonstrate the benefit in the European Ecosystem.


The RaRe² Partners

Partner Name	Country	Acronym
Fraunhofer Gesellschaft zur Förderung der angewandten Forschung	Germany	HG
SYXIS VSI	Lithuania	SYX
POLITECNICO DI MILANO	Italy	POL
AIT - AUSTRIAN INSTITUTE OF TECHNOLOGY GMBH	Austria	AIT
BIBA - Bremer Institut für Produktion und Logistik GmbH	Germany	BIB
Recendt - Research Center for non-destructive testing	Austria	REC
EFW - European Federation for Welding, Joining and Cutting	Belgium	EFW
ProFactor GmbH	Austria	PRO
CORE KENTRO KAINOTOMIAS AMRE	Greece	COR
MMM Healthcare International GmbH	Germany	MMM
FONTANA PIETRO SPA	Italy	FON
L. KARWALA Spolka Komandytowa	Poland	KAR
Menicon B.V	Netherlands	MEN
R2M SOLUTION SRL	Italy	R2M
Q4PRO	Poland	Q4P
Thermoglass.eu sp. Zo.o	Poland	THE
ENGINSOFT SPA	Italy	ESO
SYMATE GMBH	Germany	SYM
LSE - Lightweight Structures Engineering GmbH	Germany	ISE
ERRE QUADRO srl	Italy	EQO
RINA CONSULTING SPA	Italy	RIN
DEMCON INDUSTRIAL SYSTEMS GRONINGEN BV	Netherlands	DEM

The RaRe² consortium comprises Technology Providers, Certification and Standardization experts, Dissemination/communication partners, and Cybersecurity professionals. They collaborate with manufacturing research institutions and manufacturing companies to develop solutions that consider human factors and address the concerns of manufacturers. For instance, ICT software providers and system-level experts analyze data from the entire supply chain to optimize production processes. Data analysis providers utilize AI and machine learning techniques to achieve rapid reconfiguration of production. This combination of digital/process technologies and manufacturing technologies forms the core concept of the project.

About the RaRe² Project  

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