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ZERO DEFECT MANUFACTURING CLUSTER (4ZDM)

MEGAFIT **MEGAFIT**
Manufacturing Error-free Goods at First Time.
The primary goal of MEGaFiT is to develop and integrate all necessary technologies which create the basis to reduce the number of defects in the manufacturing of complex high-precision metal parts.
www.megafit-project.eu

MUPROD **MUPROD**
Innovative proactive Quality Control system for in-process multi-stage defect reduction.
MUPROD will develop a new quality control system in response to the need to provide defect prediction and to avoid end of line failure. www.muprod.eu

IFaCOM **IFaCOM**
Intelligent Fault Correction and self Optimizing Manufacturing systems.
IFaCOM aims to achieve a near zero defect level of manufacturing for all kinds of manufacturing, with emphasis on production of high value parts, on large variety custom design manufacturing and on high performance products. New manufacturing strategies and methods of Zero Defect Manufacturing has been demonstrated in five industrial demonstrator cases. www.ifacom.org

MIDEMMA **MIDEMMA**
Minimizing Defects in Micro-Manufacturing Applications. The MIDEMMA project will give a global solution for the 'zero defect' approach in micro-manufacturing, with a focus on the aspects that are specific to micro-manufacturing.
www.midemma.eu

ROBOTIC CLUSTER

COMET **COMET**
Plug-and-Produce Components and Methods for Adaptive Control of Industrial Robots Enabling Cost Effective, High Precision Manufacturing in Factories of the Future. COMET aims to optimise and control the movement in robots by developing dedicated hard- and software modules combined within an innovative Plug-and-Produce platform. COMET outcomes will improve efficiency and boost productivity in the manufacturing industry. www.cometproject.eu

FibreMap **FibreMap**
Automatic Mapping of Fibre Orientation for Draping of Carbon Fibre Parts. This project aims at the development of an automatic quality control and feedback mechanism to improve draping of carbon fibres on complex parts. There is a strong need in the automotive industry for automatic systems that perform quality control and improve draping processes in order to allow high production volumes. The technology that is being developed in the project will include a new sensor system for robust detection of fibre orientation combined with a robotic system to scan complex parts. www.fibremap.eu

MIROR **MIROR**
Miniaturised Robotic systems for holistic in-situ Repair and maintenance works in restrained and hazardous environments. To be developed as a fundamentally novel concept of a Miniaturised Robotic Machine (Mini-RoboMach) system, that equipped with intelligence-driven and autonomous abilities, to be demonstrated for holistic in-situ repair and maintenance of large and/or intricate installations. Targeted as high investment applications in: aero-engines, nuclear, power-generation, oil and gas and large civil engineering structures www.MIRoR.eu

MAINBOT **MAINBOT**
Mobile Robots for Inspection and Maintenance Activities in Extensive Industrial Plants. MAINBOT will take available wheeled mobile platforms and climbing robots, adapting them to fulfil the industrial objectives of autonomous navigation, mobile manipulation and sensor fusion instantiated in a real industrial scenario. www.mainbot.eu

AUTORECON **AUTORECON**
AUTonomous co-operative machines for highly RECONfigurably assembly operations of the future. AUTORECON aims to enable the development of autonomous, exchangeable and mobile production units, highly interactive robotic structures and random production flow. www.autorecon.eu

THERMObot **THERMObot**
Thermobot investigated the automation of crack detection in parts of complex geometry or large size. The current procedure for crack detection is a pollutant and manual process that dates back to the 1920s and is called "magnetic particle inspection". ThermoBot aimed at replacing this old method for crack detection with a new technology that is based on autonomous inspection robots using thermography to recognize cracks on parts of complex geometry. www.thermobot.eu

X-act **X-act**
X-act aims to increase the infiltration and exploitation of highly intelligent and cooperative robotic systems inside European manufacturing and assembly facilities. X-act investigates human-robot interaction along the following directions:
a) "Highly intuitive interfaces for cooperation of humans and robots", for enabling the cooperation of humans and robots.
b) X-act develops the so-called "Fenceless human robot supervision system", intending to provide the means for detecting/ monitoring human presence and adjusting the behavior of the robots. www.xact-project.eu

CableBOT **CableBOT**
Parallel Cable Robotics for Improving Maintenance and Logistics of Large-Scale Products.
CableBOT aims to develop a new generation of modular and reconfigurable robotic devices that are capable of performing many different steps in the life-cycle stages of large-scale structures. www.cablebot.eu

MAINTENANCE & SUPPORT CLUSTER

iMAIN **iMAIN**
Intelligent Maintenance. iMain is a European level research project aiming to develop a novel decision support system for predictive maintenance. Its objective is to develop a novel and advanced concept with a practical verified solution for an information based predictive maintenance system. www.imain-project.eu

Power-OM **Power-OM**
Power consumption driven reliability, operation and maintenance optimisation. The aim for Power-OM is to use energy consumption monitoring and profiling as condition based maintenance technique, and to manage it to improve the overall business effectiveness in terms of Maintenance, Operation, and Product Reliability. The main idea behind Power-OM is not to achieve the best condition based maintenance platform, but to get the most cost effective and easy to implement platform possible. www.power-om.eu

SUPREME **SUPREME**
Sustainable Predictive Maintenance For Manufacturing Equipment. The objective of SUPREME is to provide new tools to dynamically adapt maintenance and operation strategies to the current conditions of critical components in production equipment and to achieve an integrated approach for optimal energy consumption by means of predictive maintenance tools. <https://www.supreme-fof.eu>



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CLEAN FACTORY CLUSTER

REFORM REFORM

Resource-Efficient Factory Of Recyclable Manufacturing composite components. REFORM will focus on the manufacturing processes of FRP components considering, with a holistic view, the whole manufacturing cycle.

www.reform.eu.com



DAPhNE

Designing new continuous sustainable processes using optimised microwave technologies with real time self-adaptive control. The DAPhNE consortium will provide economies of scale for the ceramic, cement and glass industries.

www.daphne-project.eu



EMC2-FACTORY

Eco Manufactured transportation means from Clean and Competitive Factory. EMC²-Factory project aimed at enabling European manufacturing industries to overachieve Europe 2020 program targets through development of a breakthrough paradigm for cost-effective, highly productive, energy-efficient and sustainable production systems. EMC²-Factory will develop a radically new paradigm for cost-effective, highly productive, energy-efficient and sustainable production system.

www.emc2-factory.eu

ENEPLAN

ENEPLAN

ENergy Efficient Process pLANning system.

The ENEPLAN project aims to develop manufacturing systems that will be highly flexible while at the same time being closely adapted to the single product.

www.eneplan.eu

FACTORY ECOMATION

Factory-ECOMATION

Developing new technologies and processes for the energy-intensive iron and steel industry; and for carbon-intensive wood-working industries

<http://www.semanticweb.it/factory-ecomation/>



AREUS

AREUS develops hardware technologies to leverage bi-directional energy flows and to improve the use of renewable energy sources in factories. A new electrical power supply system will dramatically reduce the energy consumption of robotized automation systems.

www.areus-project.eu

REEMAIN

Combining intelligent employment of renewable energy technologies and resource-saving strategies, to boost both energy and material efficiency in textiles, food and steel production industries.

www.reemain.eu

HIGH PRECISION MANUFACTURING CLUSTER

SMARTLAM

Smart production of microsystems

based on laminated polymer films. The Smartlam concept builds on a layer by layer lamination of functionalised film sheets with different material properties, allowing for manufacturing of small medium series of micro components in a rapid manufacturing manner. The project activities are addressing three different topics of potential interest for the micro manufacturing community: new conceptual approach for modelling of layer-by-layer manufactured devices, adaption of technology modules according to the requirements of a "SMARTLAM-compatible" production, and modular setup for flexible, scalable manufacturing of small and medium series.

www.smartlam.eu

NextFactory NEXTFACTORY

All-in-one manufacturing

platform for system. NextFactory is to provide a radically new way of producing micro-systems - disruptive compared to today's globalised, time- and resource-intensive production chains. In a one-stop-shop approach, Next Factory shall enable producers of micro-mechatronic systems to manufacture their products completely on one machine - set up and programmed for their specific needs within one day even in lotsizes down to 1. NextFactory aims at providing an all-in-one solution: a highly generic and flexible process chain and system architecture, integrating the manufacturing tools, components, materials and software required for the entire production cycle for all kinds of micro-systems.

<http://www.nextfactory-project.eu/>



HINMICO

High throughput integrated technologies for multimaterial functional

micro Components. The objective of the HINMICO project is the development and optimization of manufacturing processes to produce high quality multi-material micro-components, with the possibility of additional, functionalities, through more integrated, efficient and cheaper process chains.

www.hinmico.eu

FAST

Fast process and production system for

high-throughput, flexible and cost-efficient vol. production of min. components. The EU FP7 Micro-FAST project is to develop a completely new manufacturing system for the volume production of miniaturised components by overcoming the challenges on the manufacturing with a wide range of materials (metallic alloys, composites, ceramics and polymers), through: (i) developing a high-throughput, flexible and cost-efficient process by simultaneous electrical-forming and electric-fast-sintering (Micro-FAST); (ii) scaling up the process to an industrial scale; (iii) further developing it towards an industrial production system for micro-/nano-manufacturing.

www.micro-fast.eu

HI-MICRO

High precision micro production technologies.

The Hi-Micro project intends to realize an innovative approach for the design, manufacturing and quality control of tool inserts, through further developing both enabling manufacturing technologies, including additive manufacturing (AM), micro electrical discharge machining (micro-EDM), micro electro-chemical machining (micro-ECM) and micro-milling, and unique metrology and quality control methods such as computer-tomography (CT) metrology and digital holography.

www.hi-micro.eu

FABIMED

Fabrication and functionalization of biomedical microdevices.

FaBiMed will demonstrate the value of the developed technologies by producing three different micro-parts, which are essential for the performance of three innovative medical devices. The main scientific developments will be related with mould materials, in particular the substitution of conventional tool steels with coated steels, and with ceramic/glass inserts, with better replication characteristics (nanostructure transfer, better thermal control, and better demolding performance).

www.fabimed.eu

3D-HIPMAS

Pilot factory for 3D high precision MID assembly.

The project demonstrates pilot line fabrication of advanced MID based micro assemblies. The project addresses important branches, e.g. communication, transportation, life sciences and energy. The aim is to assemble electronic components directly on 3D shaped plastic parts instead of putting them on a PCB. This technology could permit an economy of weight and matter, as well as space.

www.3d-hipmas.eu



HIPR

High precision micro-forming of complex 3D parts. HiPr project, co-funded under the FP7, is developing a novel approach for metal 3D micro-parts production, capable to reduce finishing operations, which would bring micro-forming of small parts to industrial level. The new technology is supposed to replace the energy-consuming thermal finishing and electro-erosion, to produce small metal parts for consumer goods and personal care, electronics and the automotive sectors.

www.hipr.eu