PRESS RELEASE

Brussels, 1 October 2019

The results have been announced during the European Research and Innovation Days

SUPSI and the 4D Hybrid project won the Overall Grand Prix and the Women-led-Innovation category prize

On 26 September 2019, the **4D Hybrid project** and SUPSI were awarded the Overall Grand Prix of the Innovation Radar Prize 2019, as well as the women-led innovation category prize for 2019 during the European Research & Innovation Days organized in Brussels, by the European Commission Research and Innovation DG.

4D Hybrid's main objective is to develop a new concept of hybrid additive manufacturing, supporting the Maintenance Repairing Operation (MRO) value chain with particular focus on medium to large size high-added value components and Professor Anna Valente, the Head of ARM (Automation, Robotics and Machines Laboratory) at SUPSI-DTI is the woman behind the 4D Hybrid innovation.

Funded by the European Commission's Horizon 2020, the **4D Hybrid project** involves 20 partners from 10 different countries. Coordinated by PrimaIndustrie, the consortium involves 12 industrial players, operating as technology suppliers, end users and a Communication and Dissemination partner. SUPSI is responsible for the research and technical coordination of 4D Hybrid .

Figure 1 – The partners of 4D Hybrid

The 4D Hybrid Autonomous robot

Figure 2 – The autonomous robot in action

In its first two years, 4D Hybrid developed an autonomous robot that can detect and repair vertical metal surfaces, including in offshore environments. The robot includes both a 3D Scanner and a Cold Spray gun. The 3D scanner is an Artec Space Spider commercial scanner able to reconstruct the surface and individuate the corrosion/defects on the metal surface.

The Cold Spray system, developed by SUPSI as part of the 4D Hybrid project, deposits new metal coating – stainless steel or aluminium – on the surface. When performing its Cold Spray in open environments, the robot minimises the dispersion of powder thanks to a recovery system that sucks up the powder and carries it to the top of the ship.

The autonomous robot is designed in order to repair all metal surfaces – corroded or not – whether in presence of water and dirt; and with an outside temperature ranging between 3°C and 35°C.

To climb vertically the slippery surfaces, the robot is a tracked vehicle, equipped with two robust rubber belts that adhere to the surface thanks to a vacuum-based adherence system. The robot to can move back/forth and rotate on its main axis. Furthermore, PrimaIndustrie will include in the company product portfolio the deposition modules and Comau will launch a new generation of robots for additive manufacturing and milling operations.

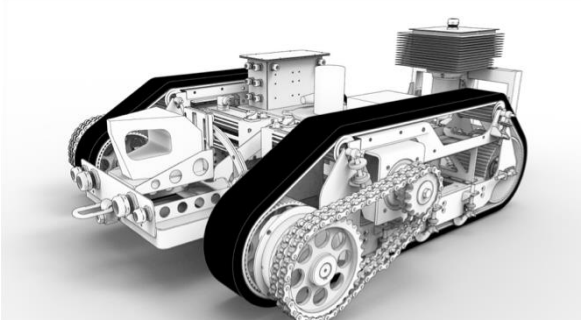

Figure 3 – The mechanics of the autonomous robot

PRESS RELEASE

4D Hybrid: Cutting the costs of maintenance and repair operations through innovation

Aerospace, oil & gas and power generation industries are currently affected by surging costs pertaining to the development and production of their products and the construction of plants (> 500 billion). More than 10% of such costs relate to repair and maintenance operations.

4D Hybrid develops a new concept of additive manufacturing based on the modular integration of compact and low-cost modules that while performing the same certified process in different places/phases of product lifecycle drastically reduce repair cost.

4D Hybrid modules can be integrated in any type of manufacturing equipment, thus avoiding major overhaul at plant level. It is pivotal to deploy solutions that are frictionless for end-users and demand little ramp-up time. This level of adaptability and flexibility will ensure a faster and efficient absorption of project results.

The Innovation Radar Prize

The Innovation Radar (IR) is a European Commission initiative to identify high potential innovations and innovators in EU-funded research and innovation projects. Using the radar, 36 among hundreds of the best EU-funded innovators have been identified to compete with their EU-funded innovation for the Innovation Radar Prize 2019. During August, 12 finalists have been selected by an open public poll for four specific categories:

- Tech for Society – recognising technologies impacting society and citizens;
- Innovative Science – cutting-edge science underpinning tomorrow's technological advances;
- Industrial & Enabling Tech – the next generation of tech and components supporting industry;
- Women-led innovations – recognising dynamic women developing and leading great innovations with EU-funding.

Contact and videos/pictures

Provided credit is given to @4D HYBRID, pictures and videos can be downloaded here:
https://4dhybrid.eu/media/imagesvideos/

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