Titolo progetto	AI Driven industrial Equipment product life cycle boosting Agility, Sustainability and resilience	Recycling renewable hydrogen for climate neutrality	High-Quality Data-Driven Services for a Digital Built Environment towards a Climate-Neutral Building Stock	OPEN PLATFORM FOR REALIZING ZERO DEFECTS IN CYBER PHYSICAL MANUFACTURING
Acronimo	AIDEAS	RecHycle	DigiBUILD	OPENZDM
Bando	Horizon Europe	Horizon Europe	Horizon Europe	Horizon Europe
Intro/Abstract	Machinery industry in Europe is a basis for employment, growth and wealth, with around 3.2 million people employed. Industrial equipment is considered a key enabler for industrial development and the EU has a historically strategic position in this sector. However, it lives from a technological edge in a very competitive landscape. Hereby, it is crucial to provide all stakeholders of the EU with AI technologies that guarantee a resilient design, deployment and reuse of industrial equipment for an increased global competitiveness and a reinforcement of its industrial strategic autonomy and resiliency. AIDEAS will develop AI technologies for supporting the entire lifecycle (design, manufacturing, use, and repair/reuse/recycle) of industrial equipment as a strategic instrument to improve sustainability, agility and resilience of the European machinery	RecHycle's goal is to implement a gas hub, capable of mixing metallurgic gases produced on site with or without external (green) hydrogen sources. This is to be fed ultimately into the Blast Furnace and a future DRI furnace to sustainably produce green steel. The project will demonstrate a cost-efficient solution to decrease carbon emissions by initiating a new industrial symbiosis between and within the steel industry, chemical industry and renewable energy sources (e.g. wind or solar to obtain green electricity or hydrogen). The project will contribute in the shift towards a circular economy where waste products are valorised to the maximum of their potential. Furthermore, the project is to serve as a stepping stone towards further development of synergies between companies within the North Sea Port industrial area, thus creating new opportunities for innovation and economic activities. Challenges to be addressed are the dynamic optimization of gas mixtures and flows, minimizing risks of hydrogen on material embrittlement, ceramic feed-inlet (Tuyere?s) within the furnaces, the quality of the produced steel and the (future) material scrap streams of the DRI. Rechycle is to be executed through a consortium of 6 partners from 4 different countries including 2 industrial partners that are world leading in the steel manufacturing industry and 4 research partners specialized in hydrogen-based studies.	Traditional silo approaches, where stakeholders manage their own data, could be replaced by digital and smart buildings, merging heterogeneous data sources, and placing the stakeholders as the core of these buildings. DigiBUILD will catalyse this much-needed transformation by making use of high-quality data and next generation digital building services, supporting the deployment of EUwide Framework for a Digital Building Logbook. An inclusive environment for multi-stakeholder knowledge exchange (based on European Bauhaus initiative) will be applied to codesign end-user-oriented services. DigiBUILD will provide an open, interoperable and cloud-based toolbox to transform current 'silo' buildings into digital, interoperable and smarter ones, based on consistent and reliable data, supporting better-informed decisionmaking for performance monitoring & assessment, planning of building infrastructure, policy making and de-risking investments. It will be built on top of existing platforms and common EU initiatives, towards an Energy Efficient Building Data Space, based on	This project addresses the challenge of mfg industry to deliver high-quality products at the necessary production rates while minimizing waste and energy consumption, maximizing efficiency and ROI. openZDM project is an Innovation Action that will develop and demonstrate in 5 representative production lines an open platform designed to realize ZDM. The platform integrates advanced ICT solutions & innovative nondestructive testing, setting the foundations for an innovative solution applicable to a large variety of mfg industries. The 5 pilots represent the largest part of the EU's manufacturing sector, geographically (including plants in northern and southern areas of Europe), technologically (fully & semi automated, and manual processes) and from their value chain positioning (including Tier 1, Tier 2 suppliers, technology suppliers and OEMs). Furthermore, the choice of partners has been done considering strategic sectors for the green transition, in particular two energy intensive production processes (glass bottles, steel suspension arms), one process strategic for the electrification (production of batteries), one process consuming renewable materials (wood based panels) and one highly digitalized automotive assembly plant. The project aims to develop a digital platform

	manufacturing companies. AIDEAS will deploy 4 integrated Suites: 1) Design: AI technologies, integrated with CAD/CAM/CAE systems, for optimising the design of industrial equipment structural components, mechanisms and control components; 2) Manufacturing: AI technologies for industrial equipment purchased components selection and procurement, manufactured parts processes optimisation, operations sequencing, quality control and customisation; 3) Use: AI technologies with added value for the industrial equipment user, providing enhanced support for installation and initial calibration, production, quality assurance and predictive maintenance for working on optimal conditions; 4) Repair-Reuse-Recycle: AI technologies for extending the useful life of machines through prescriptive maintenance (repair), facilitating a second life for machines through a smart retrofitting (reuse) and identification of the most sustainable end-of-life (recycle). The AIDEAS Solutions will be demonstrated in 4 Pilots of machinery manufacturers that provide industrial equipment		standard cloud-data platform frameworks (FIWARE) and Data Space initiatives (GAIA-X and IDSA). On top of this advanced data governance framework, we will create AI-based data analytics and Digital Building Twins based on high-quality data, aiming to facilitate transparency, trust, informed decision-making and information sharing within the built environment and construction sector, which will be deployed across 10 real-world conditions (TRL 8). DigiBUILD will contribute to the uptake of digital technologies in the building sector to better align the EU Member States' long-term renovation strategies with the EPBD requirements on decarbonisation, and on a path towards a climate-neutral building stock by 2050.	that builds on the state-of-the-art RAMI 4.0 and Asset Administration Shell (AAS) to implement intrafactory quality management practices, applicable to these different production environments. In addition several non-destructive inspection (NDI) methods and data-driven quality assessment techniques are considered for online defect identification and quality assessment, distributed at various stages along the manufacturing line. Finally, the Digital Twin and the related services is a key enabling technology for online process adaptation & prediction/prevention of defects, to achieve waste reduction and improved efficiency, aiming to significantly improve the production sustainability of CPPSs.

	to different industrial sectors: metal, stone, plastic and food.			
Link al sito	-	-	-	-
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