



## openZDM delivered a practical path to Zero-Defect Manufacturing

**[Brussels, 30 November 2025]** The openZDM project, the European initiative dedicated to advancing Zero-Defect Manufacturing (ZDM), has officially concluded following forty-two months of intensive work and collaboration. The project successfully developed and launched the **openZDM platform**, an open-source tool for realizing zero defects within cyber-physical manufacturing environments.

The project's consortium, composed of 19 partners from seven European countries spanning industry, technology, and research organizations, successfully implemented core ZDM principles.

Nikos Nikolakis, Project Coordinator, summarised the initiative's core achievement: *"openZDM has shown that when we combine digital solutions, with artificial intelligence and with the knowledge of people on the shop floor, zero-defect manufacturing becomes a realistic goal."*

Over the past years, the openZDM team developed and tested an open, data-driven framework. This framework integrates digital tools, Artificial Intelligence (AI), and Non-Destructive Inspection systems (NDIs) to shift quality control from a reactive process to proactive prevention on the factory floor. The technology was implemented in five representative pilot lines, covering sectors critical to the European economy, including steel manufacturing, vehicle assembly, glass production, wood-based panels, and electric vehicle batteries.

Through these deployments, openZDM technologies monitored critical quality characteristics, collected process data, and enabled the earlier detection of potential issues before they resulted in scrap or rework. The coordinator highlighted the value of this direct industrial testing: *"By implementing these building blocks in representative pilot lines, we have been able to explore, under realistic conditions, how such solutions can support both competitiveness and sustainability."*

The openZDM project envisioned a manufacturing ecosystem where high-quality products are crafted with precision, minimizing material waste, and reducing energy consumption. *"These lessons, together with the prototypes and reference workflows we have created, show that zero-defect and sustainability objectives can be addressed together, rather than viewed as separate or competing goals,"* Nikolakis added.



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Though the grant has ended, the project's impact continues. Partners are already integrating the platform, inspection systems, digital twins, and AI models into new commercial products, services, and research activities. Supported by the Horizon Europe Programme, this initiative provided a transformative approach to manufacturing practices, establishing a new era of efficiency and environmental responsibility in the sector.

The openZDM team believes the experience and solutions developed will inspire manufacturers to adopt open, interoperable, and data-driven methods on their own path toward low-waste, resilient production.

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