

DIGITAL TWIN TOWARDS ZERO-DEFECTS MANUFACTURING (ZDM) AND CIRCULAR ECONOMY

January 2020

725K€ EIT Funding

24 months lasting project

March 2020 Requirements definition

December 2020 Feasibility Study

December 2020 First draft exploitation report

Along 2021 – integration of systems

CHALLENGE



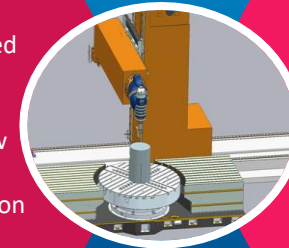
- Zero defect manufacturing approach with the focus on commissioning manufacturing solutions faster, earlier, and with higher productivity and quality.



SOLUTION



- The SOLUTION is based on DIGITAL TWINS models for process/machine/flow optimisation and performance evaluation



BENEFITS



- Reduced cycle times
- Increase workpiece quality by improving toolpath and clamping position.
- Address wear and remaining lifetime of tool and machine elements

MAIN PROJECT RESULTS

2 
LEARNING NUGGETS
CREATED IN 2020


10% REDUCTION ON
COMMISSIONING COSTS 

4 
APPS FOR INCREASED
EFFICIENCY

“EIT grant has allowed the connection among different stakeholders of the value chain and the identification of win-win collaborations”



JOSEBA BILBATUA
SENIOR Innovation Manager MONDRAGON Corporation
TWINGOALS Project
AIM: Digital Twin towards zero-defects manufacturing (ZDM) and circular economy

 mondragon-corporation.com

 [esMONDRAGON](https://twitter.com/esMONDRAGON)

DIGITAL TWIN TOWARDS ZERO-DEFECTS MANUFACTURING (ZDM) AND CIRCULAR ECONOMY



MANUFACTURING & SOCIETAL CHALLENGES

ECO-EFFICIENCY is about “doing more with less” by generating more social and economic value with a lower environmental impact. Eco-efficiency aligns closely with Lean principles: they both aim to enhance value creation by eliminating waste and pollution.

At TWINGOALS we will apply concepts around digital twin and advanced simulation to avoid those problems associated with production and manufacturing that have the greatest impact on the environmental footprint.



DEFECTS

Rework, scrap, faulty information, failure to meet requirements



OVER-PRODUCTION

Waste from making more product than the customers demand



WAITING

Wasted time spent waiting for the next process step



HUMAN POTENTIAL

Under-utilization of people's skills and knowledge



TRANSPORT

Unnecessary movements of products and materials due to system layout



MOTION

Unnecessary movements by people due to poor work station layout



INVENTORY

Excess products and materials not being processed



OVER-PROCESSING

More work or higher quality than is required by the customer



“This project (20019 TWINGOALS) has received funding from the European Union’s Horizon 2020 research and innovation programme under the grant agreement EIT/EIT Manufacturing/SGA 2020/1”

