





FLEXIMATE

AI-enabled flexible robotic manufacturing
for agile and accessible production

ORGANISATION PROFILE



MACHINING TECHNOLOGIES
ROBOTICS & AUTOMATION
PROCESS OPTIMIZATION ALGORITHMS
PROCESS MONITORING
LASER TECHNOLOGIES
DIGITAL TWINS
IA BASED INSPECTION

45

Years of
experience

35,2M€

Year
Income

49%

Industrial
Revenue

320

Hired
People



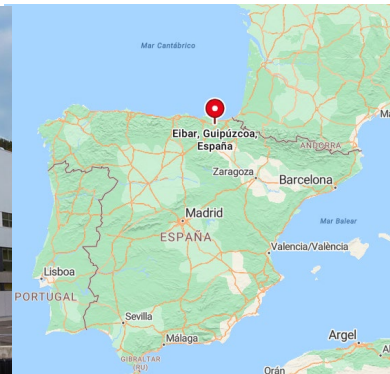
Advanced
manufacturing
technologies



Surface and
materials
technologies



Digital
technologies



PROPOSAL INTRODUCTION (I)

Vision: main project goal

To develop a **flexible robotic manufacturing system** capable of complementing conventional manufacturing equipment with agile, low-volume and multi-process operations. The system will use a robot with interchangeable process heads for machining, drilling, additive manufacturing, inspection and other operations. **AI-based programming** will allow non-expert operators to define tasks through natural language, gestures or intuitive interfaces. A dedicated **validation system based in digital twins** will verify AI-generated process plans and trajectories before execution, ensuring safe and reliable production.

Motivation: why the project is necessary

Manufacturing companies increasingly need **flexible solutions for customised, small-batch and rapidly changing production**. At the same time, the lack of robotics and programming expertise is a major barrier to the adoption of flexible robotic systems, especially for SMEs. The project will address this gap by combining intuitive human interaction, AI-based programming and automated process validation. This will enable operators to use advanced robotic manufacturing capabilities without requiring specialised robot programming skills.

Content: which are the developments to be made in the project

Modular robotic platform with interchangeable heads

AI-based system able to translate natural language and operator inputs into manufacturing tasks and **robot trajectories**.

Digital models and simulation tools **to validation and verification** of trajectories, process parameters, collisions, manufacturability and expected quality

PROPOSAL INTRODUCTION (II)

Expected outcome: descriptions of the results to be obtained in the project

A demonstrator of a flexible, **multi-process robotic manufacturing system**

An intuitive **AI-based programming environment** that enables non-expert operators to define manufacturing tasks with minimal programming effort.

A verification and **validation framework** ensuring that AI-generated manufacturing plans are technically feasible and safe before execution.

Impacts: what will be the expected market impact of the project

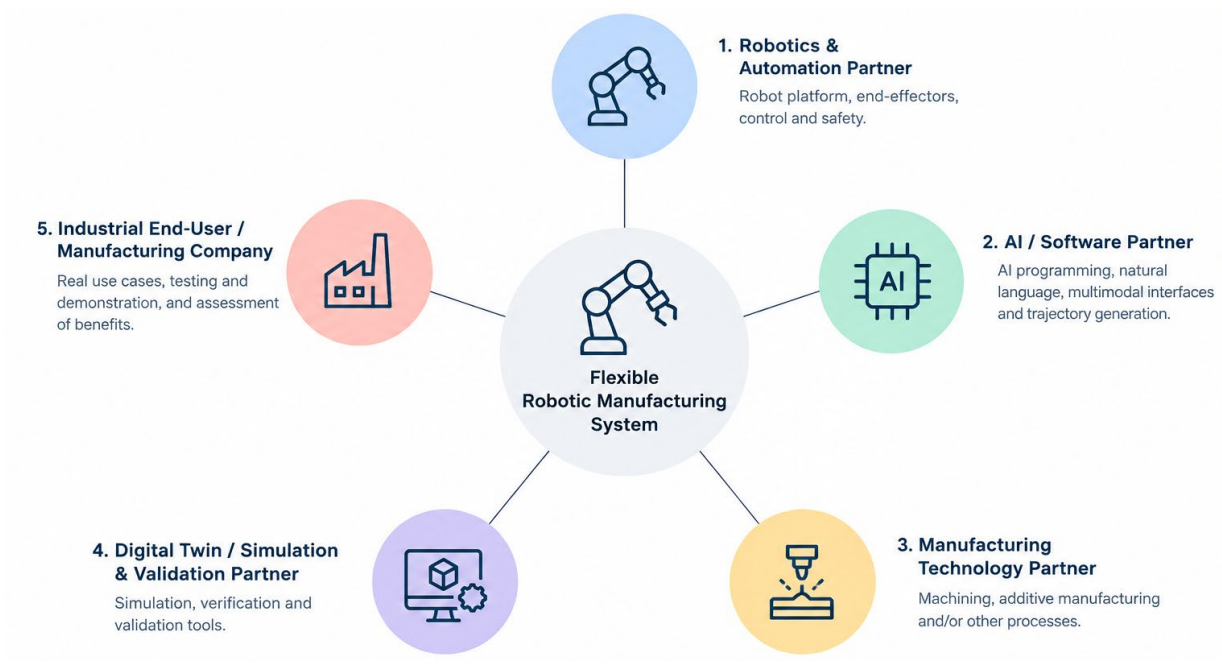
The solution will lower the **entry barrier for SMEs** seeking to **adopt flexible robotic manufacturing** technologies. By complementing rather than replacing conventional machines, the system can extend existing manufacturing capabilities and improve overall production flexibility. AI-assisted programming and automated validation will **reduce setup and programming time** while improving **accessibility** and operational reliability.

Schedule: Start and end dates for the project: 2027 - 2029
Duration: 3 years

PARTNERS

Current Consortium: list of partners already involved in the project

Partner search: type of partner searched and countries of origin (if necessary).





CONTACT INFO

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Anything Else?

**Advanced Repair of Metal Components
Using Additive Manufacturing**

**Intelligent Generation of Toolpaths
Adapted to Quality Requirements**

**In-Situ NDT Inspection of Machine-Tool
Manufactured Components**

**Intelligent Crop Control Adapted to
Plant Growth**

