

# A FLEXIBLE AUTOMATED NDT PLATFORM FOR MANUFACTURING BASIC COMPOSITE PARTS

FANTOM PROJECT (FLEXIBLE AND AUTOMATED NDT PLATFORM FOR MANUFACTURING)

The purpose of the FANTOM project is to render inspection operations for carbon composite parts more flexible by automating them in an agile manner. It is also intended to facilitate analysis and enhance the digital continuity of the product.

## TECHNICAL AND ECONOMIC IMPACTS

- Automated Non-Destructive Testing (Material Soundness, Visual Inspection, Geometric Inspection) in an agile and mobile way
- Analysis facilitated by combining data from different types of control tests with reliable diagnosis

## PARTNERS

AIRBUS, AXIOME, CEA TECH, DAHER AEROSPACE, DIOTA, TESTIA, IRT JULES VERNE,

## BUDGET

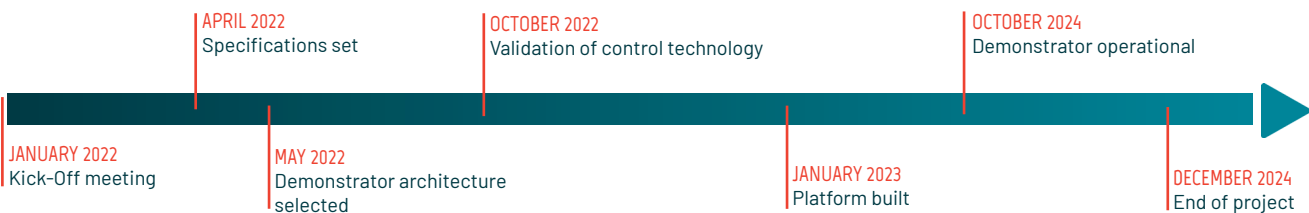
€3,979k

## KEYWORDS

Non-Destructive Testing - Ultrasound - Visual Inspection - Geometric Inspection - Global Analysis - Cobot - Mobility - Agility - Digital Continuity

## RESEARCH THEMES AND EXPERTISES

Flexible and intelligent production systems  
Mobility within the manufacturing area



## INDUSTRIAL CONTEXT

Inspection operations are widely considered as creating bottlenecks as the flow of manufacturing of composite parts for aircraft structures increases. Manufacturers are constantly seeking to reduce inspection costs by focusing in particular on automating such operations. However, control procedures are often specific to one type of part and inspecting complex geometries poses difficulties. Meeting this need may entail heavy investment costs for manufacturers which are hard to justify in the case of low-speed production processes or processes requiring multiple qualified operators.

## INNOVATIVE FEATURES

- Automated non-destructive testing (NDT) on a mobile platform
- Combining of NDT data for automatic analysis and consolidated diagnosis
- Helps operators analyse inspection data and provides diagnosis using innovative means.

## INDUSTRIAL APPLICATIONS

The project aims to overcome the lack of flexibility in standard testing equipment by developing a robotic control system for large or complex-geometry structures. The system must be flexible, mobile, and capable of working in close proximity to operators. The project will enable development of the tools necessary for meaningful interpretation of the inspection data. Ease of use for non-robotics oriented users is a key consideration. As well as the capabilities of the hardware platform, a further challenge is how to combine data from various types of inspection (ultrasonic inspection, visual inspection, geometric inspection) to facilitate analysis, diagnostics, and interaction with the operator.

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