

## PRESS RELEASE

# Artificial Intelligence to automate and digitise aeronautical manufacturing

- *The Tekniker technology centre is coordinating the promotion of AI and sensorics within the scope of the DIGIFORM project to improve and optimise industrial production.*
- *All of the developments associated with this initiative (funded by the Spanish Government) will be applied and tested in the welding, grinding and polishing of metal parts. Peen forming will be covered too.*

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[Eibar, October 9, 2024] – Digitisation actions aimed at production resources and processes that are increasingly present in industrial manufacturing environments together with simulation models and digital twins provide a large amount of valuable information required by new technological breakthroughs so they can be properly processed to advance towards a data-based production system that is more sustainable, resilient and efficient.

The **Tekniker** technology centre (member of the Basque Technology Alliance - BRTA) is participating in the DIGIFORM project that kicked off earlier this year. Its main target consists in developing enabling technologies such as Artificial Intelligence or sensorics to enhance the automation and digitisation of production resources applied to metal components in the aeronautical sector.

The initiative is specifically focused on increasing efficiency, sustainability and productivity and reducing set-up times so that sheet metal processing can meet requirements related to the quality, finishes and geometric tolerances of end products.

## Use cases

The enabling technologies to be deployed in the project will be applied to three use cases associated with metal components and several procedures, namely, welding, grinding, polishing and peen forming.

A TIG (“Tungsten Inert Gas”) welding process control system for thin sheet metal will be incorporated to minimise deformations and geometric distortions.

Work will also focus on implementing automation by means of AI tools and metrology technologies for a process that is currently done manually and involves the grinding of metal parts.

Finally, a support tool will be developed for operators performing peen forming techniques also known as pellet sheet metal forming to define and adapt the different stages covered by manufacturing processes on a real-time basis.

Oscar Gonzalo, a Tekniker researcher, explains that “the project places AI technologies in the centre to develop models based on data supplied by virtual physical models and real-life manufacturing systems via monitoring and inspection. These models will be used to perform adaptative control, to optimise processes and improve physical models”.

As regards Tekniker, the organisation’s research activities will focus on developing digital twins of robotic systems to upgrade their accuracy; on designing sensorised elements for the three processes and to gather and analyse monitoring data to develop AI models assisting decision making in processes. The end result of this work will be several process, optimisation and control algorithms to be used in robotised manufacturing cells of the processes developed in the project.

All the results that are expected from three years of work in the DIGIFORM initiative jointly funded by CDTI’s TRANSMISIONES programme and the Spanish Research Agency will be measured and validated under the leadership of the companies of grupo Aernnova; Intec Air and Aerometallic Tarazona. MEK&BOT, Talleres Alju, Hexagon, the Engineering Division of Aernnova and the AITIIP Technology Centre will address technological developments in collaboration with Tekniker.

## More about Tekniker

Tekniker is a technology centre that specialises in advanced manufacturing, surface & material engineering and ICTs for production. Its mission is to further growth and wellbeing via R&D&I in society as a whole by furthering the competitiveness of the industrial fabric in a sustainable manner. Tekniker is a member of the Basque Research and Technology Alliance (BRTA).

### More information:

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