

## APPLICATIONS:



**CONSUMER GOODS**

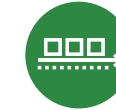


**PACKAGINGS**



**ENERGY & TRANSPORT**

## DEVELOPMENT:



**PROCESSING**

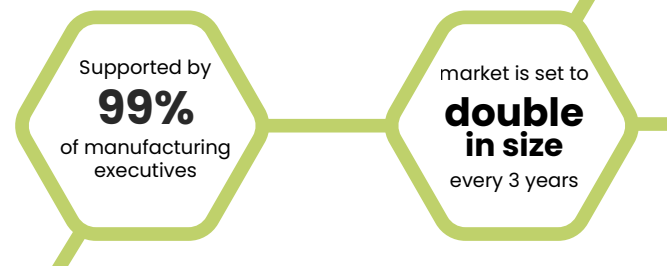
### CURRENT-STATUS

Additive Manufacturing eliminates the need for manufacturing moulds or tools to produce components. This has a lot of benefits but at the moment there are 3 drawbacks:

Printing quality

Strength of the part (which is weak perpendicularly to build axis)

- Lack of an accurate prediction of the surface output.



### CHALLENGE

Use of bio-based blended materials that present different Tg and Tm temperatures and might response accentuating surface peaks and voids in order to foster the non-desired effects of current AM processes.

### FURTHER DEVELOPMENT

A unique heading prototype will allow surface filament modification while printing all in on step.

On one hand the heading device will incorporate controlled temperature, pressure and "cold plasma" devices to improve the interlayer adhesion.

On the other hand, the device will include in-line quality control parameters (machine vision - real time monitoring) in order to avoid printing defects.

**Reduce manufacturing time by 20%**

**Reduce the defects to the minimum**

**Increasing the production capacity by more than 20%.**

**Reduce costs by 25%**

**Reduce waste by 30%**

### BENEFITS FOR COMPANIES AND SME'S

The main benefits from this pilot line for SMEs and companies will include competitive costs of dedicated processing equipment to produce complex 3D printed parts and products at a very competitive cost, unlocking a change in their manufacturing processes and reducing manufacturing time by more than 50%.

### APPLICATION EXAMPLES

#### AUTOMOTIVE COMPONENTS

AITIIP will fabricate interior automotive components by FFF with the specific properties defined by CRF.

#### INNER SHOE SOLES

AITIIP will develop and characterize nano-enabled bio-based formulations of biopolymers loaded with microfibres according to specifications from PODO for 3D printing requirements. The formulations will be prepared by extrusion compounding and delivered to IPC to extrude filaments for 3D printing. AITIIP will process TPU reinforced filaments by 3D printers to manufacture shoe sole demonstrators, implementing a novel system to enhance properties.