

IMPALA

**Intelligent Manufacture from Powder
by Advanced Laser Assimilation**

- **End user: Cochlear, GE, Semitool Ltd, GE, Wisident, Wolframcarb, Osvat**

IMPALA will develop flexible and efficient rapid manufacturing processes of custom parts or small batches. SME end users will be at the forefront of this project, helping them increase their annual turnover by between 20 and 50%, by producing a diversified range of high-value components.

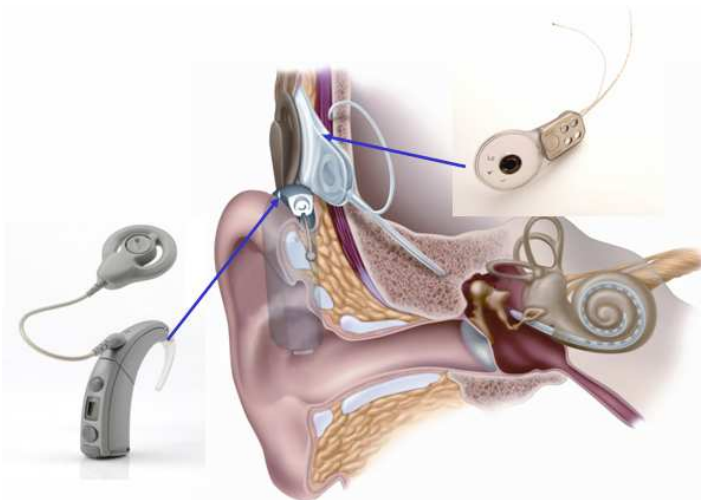
Currently, manufacturing custom products, such as artificial teeth, can take several days or weeks and is very expensive. This project will reduce the time between conception and product delivery as well as reduce manufacturing costs. It will transform part of the resource-intensive European Industry to that of knowledge-intensive and will be a key enabling tool for European Innovation, vital for maintaining the EU as a world leader in rapid manufacturing.



The consortium is composed of companies and research institutions with expertise in different domains, including automation, laser materials processing, materials and modelling, and will seek to develop the following:

- an automation system which will shorten the process time by implementing an Imaging system, a CAD/CAM system and a CNC system;
- laser sintering and direct metal deposition processes for rapid manufacturing of producing 3D complex structures with enhanced properties;
- a process control system to ensure good product quality and good reproducibility;
- a simulation tool based on modelling and experimental validation, to allow the predetermining of parameters for the production of high-quality parts, right from the first time.

The suggested IMPALA concept for rapid manufacturing is environmentally-friendly, with no waste material and no need for solvents. The concept can also be used for repairing expensive parts, thereby also contributing to a reduction in waste. Society will directly benefit from this process as it will support the generation of high-value knowledge-based jobs and will have the ability to produce health care benefits, from custom orthopaedic implants to components for improved drug delivery systems.



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