



# Digital Generation of High Resolution Objects

### **Results in Brief**

# Building up parts with micro-sized features

Additive manufacturing (AM) is a rapidly growing technique that builds up parts of complex shapes by adding on successive layers from computer-aided design files. Scientists explored the potential for adaptation to parts with micrometre resolution.



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The numerous benefits of AM compared to traditional casting and welding include reduced scrap and energy, excellent accuracy and minimal post-processing. The majority of progress has been seen with larger parts for the consumer goods, automotive and aerospace sectors.

However, the longer AM is around and the more materials to which it is successfully applied, the more its potential market expands.

Microfabrication is the next great frontier and the EU-funded project 'Digital generation of high resolution objects' (DIGHIRO) was launched to explore the potential.

Scientists investigated technologies that would support the extension of AM, often referred to as 3D printing, to production of parts with features on the scale of a few micrometres. Work led to development of a prototype AM system with micrometre resolution capability and exploration of numerous applications, including microfluidics

and lab-on-a-chip devices.

Interest in AM of miniature parts is growing, particularly now that compatibility has been demonstrated with materials of widespread industrial use such as titanium, aluminium and tungsten. Commercialisation and market uptake will require improved processes and machine control. DIGHIRO has contributed to this effort with improved understanding of relevant technologies and a novel prototype.

## Keywords

Additive manufacturing, complex shapes, digital generation, high resolution

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**Project Information** 

#### DIGHIRO

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Project closed

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