

# Additive manufacturing and the potential for innovation: how Sirris helps companies to embrace change

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## Abstract

Sirris is the collective center founded in 1949 by Agoria for the technological industry. It offers Belgian companies three key assets to help industry remain innovative: years of experience and comprehensive expertise in a wide range of sectors, high-tech testing infrastructure and an extensive network of partners. Sirris helps large and smaller players in Belgian industry to make the right technological choices and achieve sustainable economic growth. Sirris is also a membership organisation/association with more than 2400 industrial members, from a large panel of sectors: metals and plastics, electronics, mechanics & mechatronics, ICT, energy, aeronautics, ...

Sirris is a non-profit organisation spread over 7 locations in Belgium (Seraing, Gosselies, Gent, Diepenbeek, Antwerpen, Kortrijk and Brussels). The Sirris team is composed by 155 staff members mostly engineers and R&D scientists working in diverse areas. The center is mainly active in 4 core technological domains: Materials, Advanced Manufacturing including AM, Mechatronics, ICT but has also specialized groups in nanotechnology and in plastic compounding and processing.

The most valuable expertise in this projet is the wide experience of Sirris in Additive Manufacturing. T-ADD department (20 engineers and technicians) is involved in AM since 1990 and has acquired an important know-how in AM processes dedicated to polymer, metal and ceramic materials. The specialised labs in Gosselies and Seraing for development and testing purposes are available nowhere else in Belgium. Sirris can offer access to 15 different AM technologies including: photopolymerisation of resins (Viper/Optoform/Prodways), Connex technology/bimaterial, laser sintering of polymer powders (EOSINT P), 3D Printing (Prometal), metal powder melting (EBM / Laser Cladding/ LBM). In 2018 Sirris is simultaneously involved in 22 large projects (1 to 4 years) which are regional, national and EU projects. Most of these projects concern the aerospace industry with a lot of innovative applications concerning thermal management (heat pipes, exchangers,...).

Topology optimization was first implemented in 2008 (FP7 project called Compolight) by Sirris and partners for helicopter parts. The link between AM and topology optimization is nowadays widely used by engineers and designers.

Together with the precision manufacturing department within Sirris a 3D printed watch was developed and realized. Never before having created a watch, the two departments created this 3D printed watch in 8 weeks from idea till production set-up. The watch was not only 3D printed, high precision post-machined and coated with a CrCN coating, the surface also received additional functionalities by femto-laser structuration in the thickness of the CrCN coating. The case of this watch will also be presented during the presentation.