

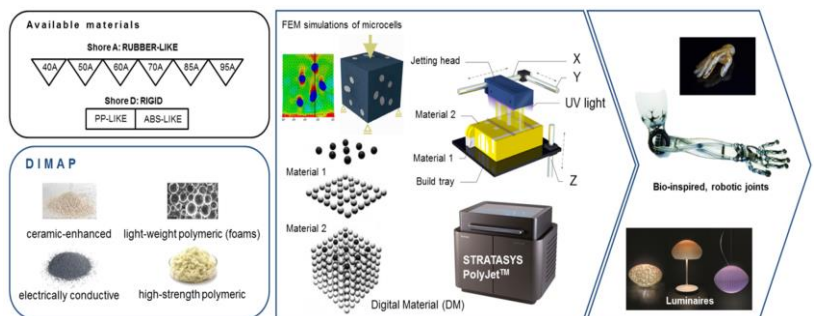
PROJECT SUMMARY AND APPROACH

The DIMAP project (October 2015 – September 2018) focuses on the **development of novel ink materials** for 3D multi-material inkjet printing by **PolyJet technology**. The project will advance the state-of-the-art of additive manufacturing (AM) through modifications of its fundamental material properties by mainly using **nanoscale material enhanced inks**. Thereby widening the range of current available AM materials and implementing functionalities in final objects. Consequently, applications will not be limited to rapid prototyping, but will be able to be used directly in production processes.

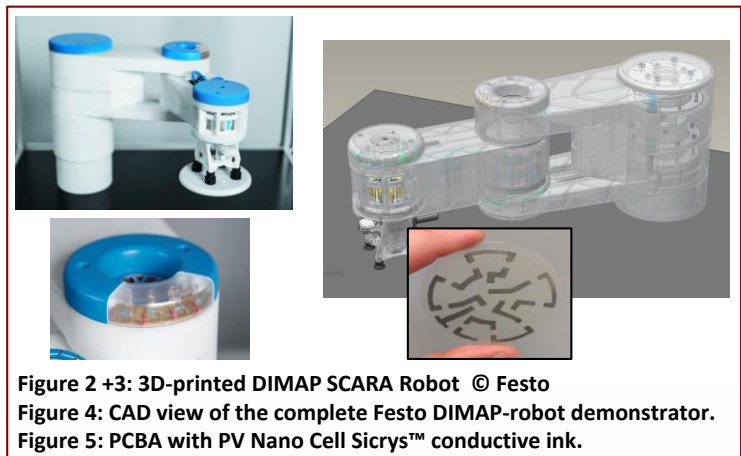
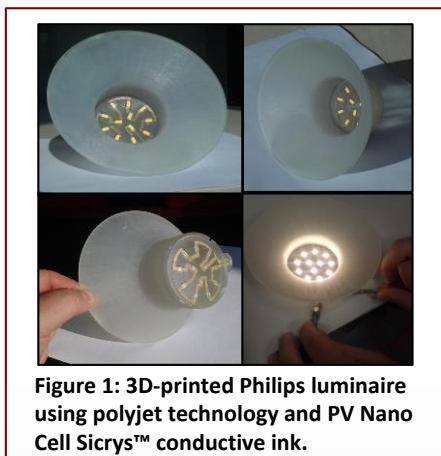
DIMAP shows this transition in two selected application fields: the production of soft **robotic arms/ joints** and **customized luminaires**. In order to cope with these new material classes, the existing PolyJet technology has been further developed and improved. With the development of novel ink materials based on nanotechnology, improvement of the **mechanical properties** (ceramic enhanced and high strength polymeric inks), the **electrical conductivity** (nano metal particles enhanced inks) and the **weightiness** (light weight polymeric materials) are achieved. Based on the voxel printing by PolyJet, these new materials lead to a huge broadening of the range of available digital material combinations. Further focus points during the material and printer development are **safe by design** approaches, work place safety, risk assessment, collaboration with EU safety cluster and life cycle assessment.

DIMAP APPLICATION FIELDS

- Additive manufactured joints
- Additive manufactured luminaires
- Ceramic enhanced materials
- Electrically conducting materials
- High strength polymeric materials
- Light weight polymeric materials
- Novel multi-material 3D-printer
- Safe by design approach



DIMAP PRINTED DEMONSTRATORS



PARTNERS

