

A woman with brown hair, wearing a red lab coat, is looking intently at a computer monitor in a laboratory. The background shows various pieces of laboratory equipment, including a large white machine and a red chair. The scene is brightly lit, suggesting a professional research environment.

Brightlands Materials Center

Sustainable Materials Innovations

Marnix van Gurp

Brightlands Materials Center

- **Public-private partnership** initiative founded March 19, 2015 by TNO and the Province of Limburg
- Focusing on **sustainable** innovations in **polymeric materials**
- Programmatic R&D along the chain of knowledge driven by **application challenges**
- R&D programs supported by **basic academic knowledge**
- Collaboration of industrial partners in shared R&D leading to **shorter time-to-technology**
- **Network** of partners around **physical location** at the Brightlands Campus

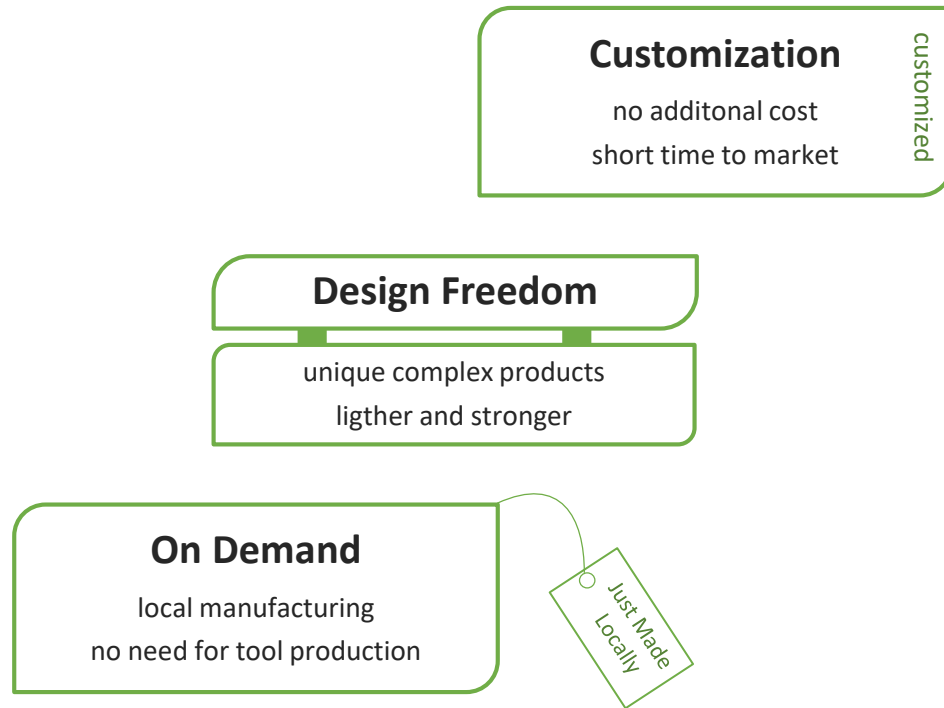
- Three programs initiated:
 - Sustainable Buildings
 - Additive Manufacturing
 - Lightweight Automotive



Additive Manufacturing

Industry needs

Additive Manufacturing (or often called 3D printing) is an emerging manufacturing technology of metal or plastic products meeting the following needs:



Currently, a rapid change is happening in industry from Prototypes to Functional Products

There is a need for

- dedicated and improved materials
- multimaterial products with added functionalities

Additive Manufacturing

Research and Development objectives

Our R&D objectives are focused on three market domains:

Automotive Parts

1. How to select materials and how to print these in order to produce structural parts that meet automotive specs
2. Which material characteristics determine optimal part performance



Dental and Biomedical

1. Develop printing technology and materials for multicolor dental applications
2. Develop printing technology and materials for bioresorbable scaffolds for tissue engineering



Integrated Electronics

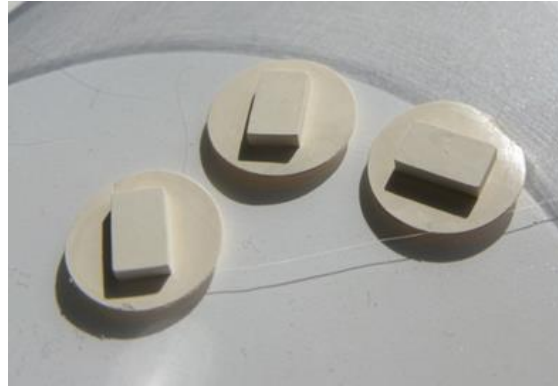
1. Design and develop multimaterial printing technologies to add optical and electrical functionality in parts for electronic or sensing applications



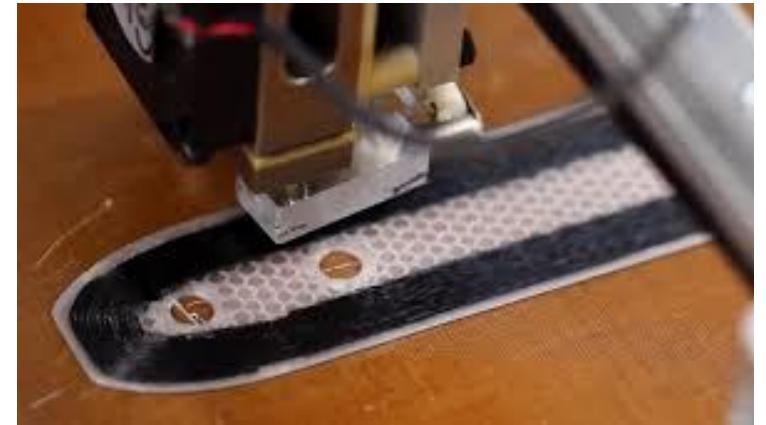
Additive Manufacturing Solutions



Biocompatible photopolymer materials for 3D printed dental products



3D printed piezoelectric composites



Fiber reinforced 3D printing



Multi-color printing



Integrated Electronics