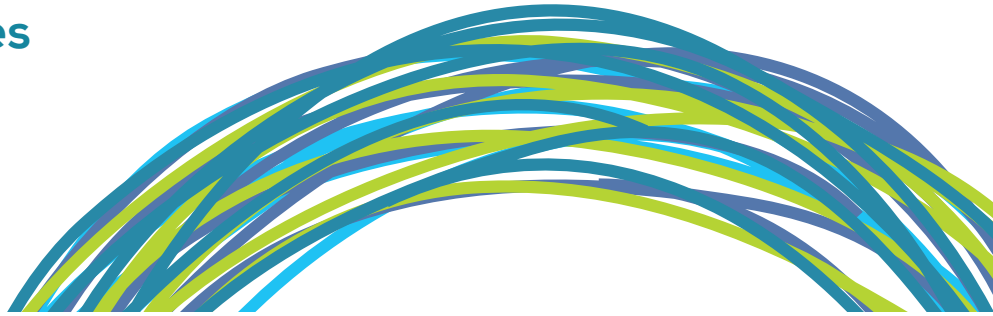


OPENMIND - On-demand production of entirely customised minimally invasive medical devices



ADVANCED / Meant for a new generation of MICRO-INSTRUMENTS

OPENMIND - On-demand production of entirely customised minimally invasive medical devices is a project that aims to develop **a flexible technology for medical disposable manufacturing**. The project will realize a first generation of new compatible minimally invasive devices - like guide wires, catheters, micro instruments - with the MRI (Magnetic Resonance Imaging) technology. In fact, the demonstrator device of the OPENMIND project is manufactured without any macroscopic metallic components and thus will be inherently MRI safe.

The main goal of OPENMIND project is to realize the first flexible process chain for customised medical devices. The **advanced process chain** will close the gap between efficiently produced standard products and individually designed products, enabling even the production of small batches and, furthermore, will be able to perform automated optimisation of the running process.

DYNAMIC / Built on a continuous, FULLY MONITORED, and automated PROCESS CHAIN

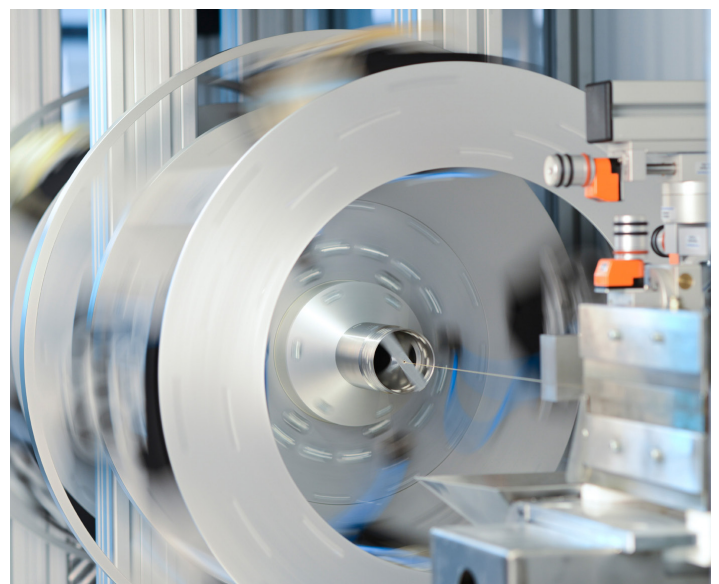
OPENMIND will develop **a comprehensive monitoring and data handling system with advanced data mining functionalities** for fast process development and optimisation. This system will be based on a process model that will be realized and quantified by all project partners. All acquired and stored data will be used to automatically **predict parameter sets for new variants of the product** and will be processed and analyzed by advanced and appropriate data mining algorithms, built with inputs from previously produced devices.

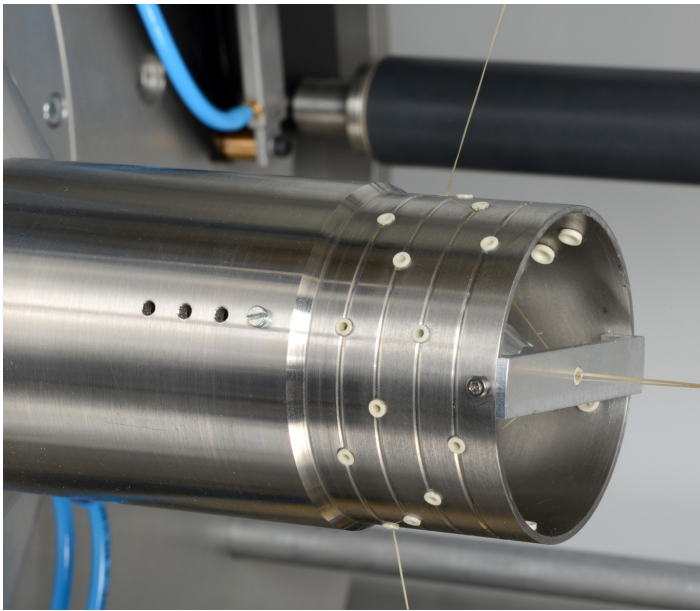
An additional new element of OPENMIND is the **process metrology systems**, including sophisticated image evaluation techniques that will generate the required data by detecting and evaluating the properties of the product in each important step of the production process development.

INNOVATIVE / Based on a FIBRE- REINFORCED PLASTICS micro- pullwinding TECHNOLOGY

The advanced system developed by OPENMIND will be based on **FRP (fibre-reinforced plastics) production processes (micro-pullwinding)** and will adapt the FRP processes in order to introduce a completely new generation of multi-modal minimally invasive devices that will be widely customizable by doctors.

The use of innovative FRP material is important for mechanical individualisation of the device, in fact, the strength and stiffness of the product depends on the fibre orientation. With a deliberate choice of the employed high tech fibres in a multi material profile, the devices are neither magnetic nor electrically conductive. This gives the new devices **the unique property of being fully and inherently MRI safe**, boosting the evolution of MRI from a sophisticated diagnostic technology to a powerful therapeutic tool.





CUSTOMIZED / Based on your NEEDS

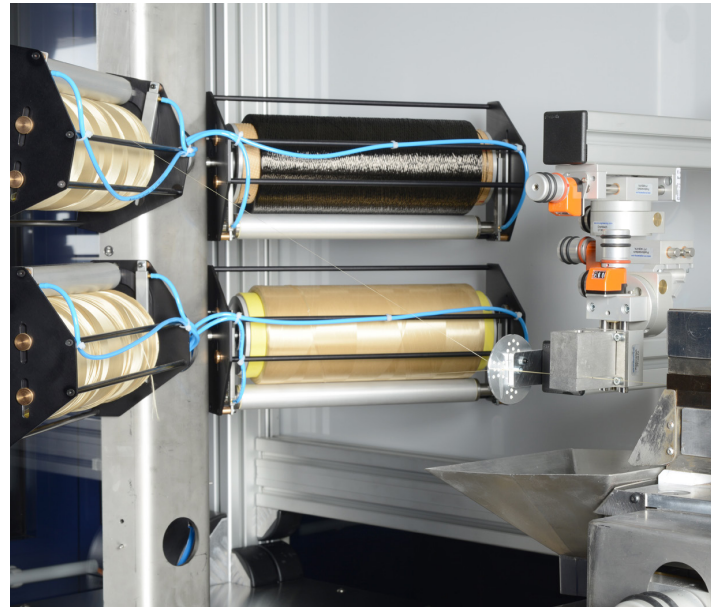
With the outcome of the OPENMIND project **physicians will be able to work with tailored tools.** Thanks to OPENMIND, combining highly flexible processes and intelligent data mining functionality, new perspectives for personalised medical devices will open.

Improvements are expected in terms of reduction of lead-times for manufacturing of custom made parts (by 50%) due to continuous manufacturing, as well as reduction of process development time (by 50%) and costs (by 20%) due to data mining assisted parametrisation resulting in a reduced time to market (by 30%). Besides this industrial perspective, the project will also have a **strong social impact**: regardless of the direct health care costs, the productivity loss due to cardiovascular diseases adds up to over 45 billion € per year only in Europe.

SYNERGIC / Led by a great TEAM

Funded by the European Union under the Horizon 2020 Research and Innovation Programme, OPENMIND is an initiative developed in 6 different European countries: Italy, Spain, Germany, Ireland, France and Czech Republic. The 9 technical and scientific partners involved are: **Fraunhofer Institute for Production Technology IPT** (coordinator), **Diribet spol. s.r.o.**, **IRIS (Innovació I Recerca Industrial I Sostenible)**, **Fondazione Politecnico di Milano**, **Nano4Imaging GmbH**, **Blueacre Technology Ltd**, **Tamponcolor GmbH**, **Gimac International** and **ICS - In-Core Systems**.

The project will last 3 years, from September 2015 to August 2018.



Want to know more?

 www.openmind-project.eu

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partners

