

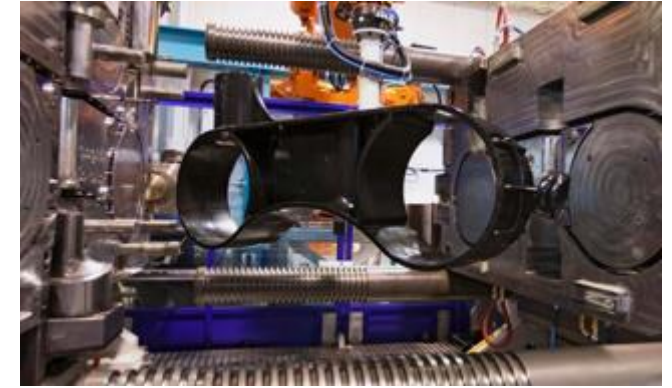
INMAN; Intelligent Circular Manufacturing research and educational collaboration with India and Japan

- **Main objective;** world-class research and education on Circular Manufacturing
- **Long-term international partnerships** between;
 - NTNU + SFI Manufacturing
 - Waseda University and Advanced Industrial Science and Technology (Japan)
 - Indian Institute of Technology
- Total budget; 5,3 MNOK (80% funding from the Norwegian Research Council from the Intpart program)
- Duration; 2018-2020



Circular manufacturing

- Development of sustainable products and sustainable processes:
 - Zero waste, zero emissions, minimized resource usage, light weight,...
- Design for extended product life:
 - Durability, maintainability
- Circular flows:
 - Reuse of products – sustained performance
 - Cascading reuse, new functionality, degraded performance
 - Reuse of components – sustained performance
 - Remanufacturing of components – upgrading performance
 - Recycling of materials
- Typical challenges:
 - Optimised maintained lifetime and End-Of-Life decisions
 - Effective and sustainable disassembly and recovery processes
 - Effective and sustainable reverse logistics
 - Sustainable reuse and remanufacturing
 - New business models – sharing, product-service systems
- Digitalisation, IoT, Big Data, AI etc. are enablers for circular manufacturing





SUSTAINABLE DEVELOPMENT GOALS



INMAN events 2019-2020

- Summerschool på NTNU Gjøvik, Sept. 9th – 13th 2019
 - External interests are welcome to participate at parts or whole
- ECO-Design symposium in Yokohama, Japan Nov. 25th to 27th 2019
 - <http://ecodenet.com/ed2019/>
 - Special session for INMAN Nov 26th
 - Industry tour for INMAN participants 27th (Hitachi Construction Machinery) and 28th (Ricoh)
- INMAN meeting and industry workshop at IIT in Hyderabad, India in October 2020
- An online course (MOOC) on Circular Manufacturing available from 2020

