



Dr. Tech. Egidija Rainosalo, R&D Coordinator

Region's economic environment



Kokkola Industrial Park

- Battery Chemicals
- Hydrogen
- Inorganic materials

Wind Energy

Organic agriculture

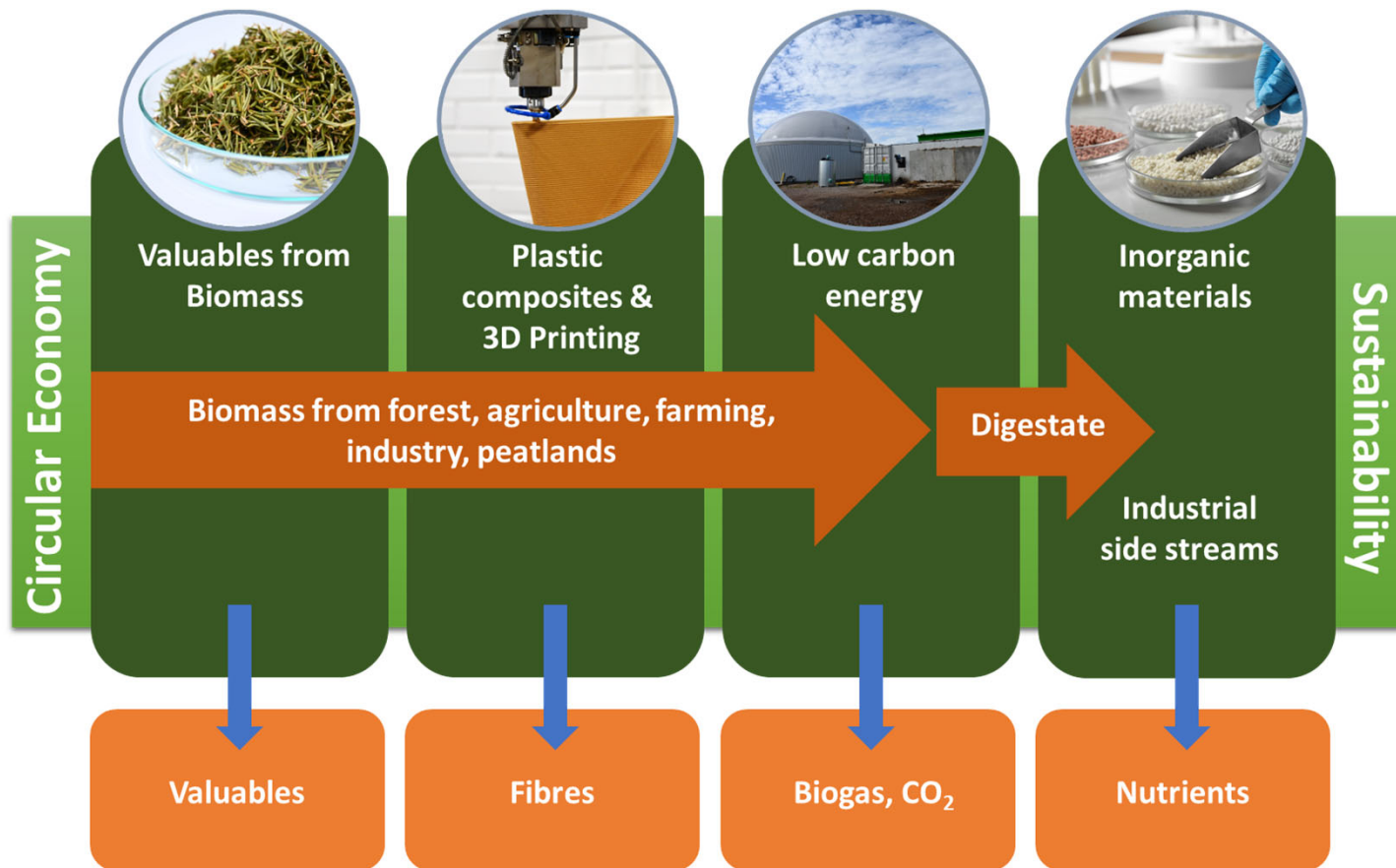
Animal husbandry/milk cows

Wood processing

Mechanical engineering

Boat industry

Chemistry & Bioeconomy



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CENTRIA
University of Applied Sciences

PlastLab

Biobased plastic composites and
3D printing

Compounding

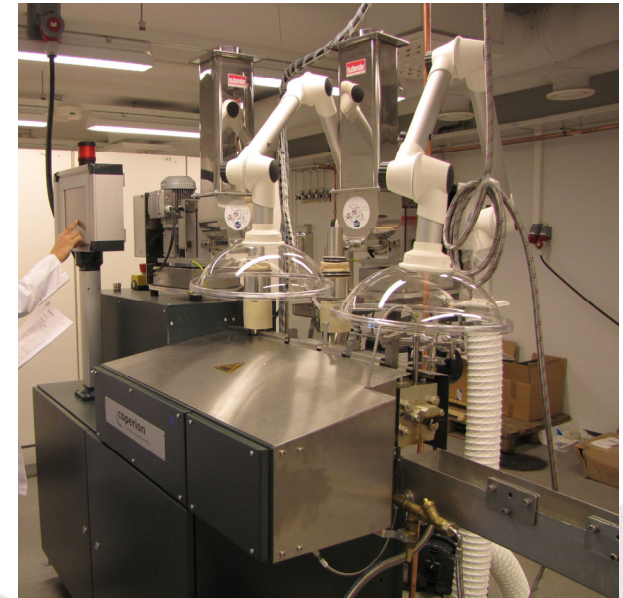
- Natural fibres can be mixed with PLA, PE, PP, PVC, i.e. plastics which have processing temperature of about 200°C
- Compounding for functionalisation: UV resistance, fire retardancy, etc.



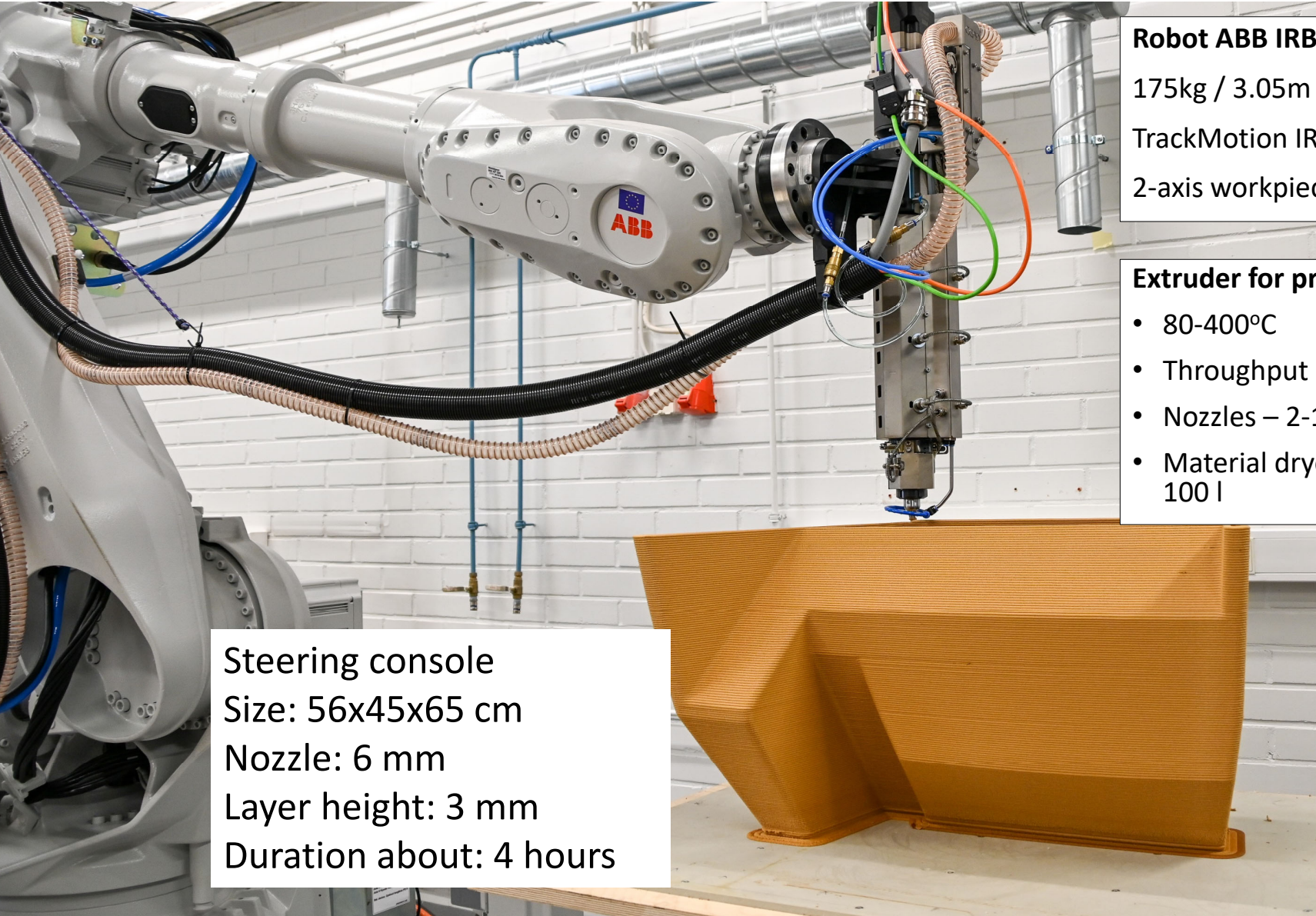
Fibers/Saw dust



Plastic



Twin screw extruder,
throughput up to 100 kg/day



Robot ABB IRB6700

175kg / 3.05m
TrackMotion IRBT6004, 2,7m
2-axis workpiece positioner IRBP A500

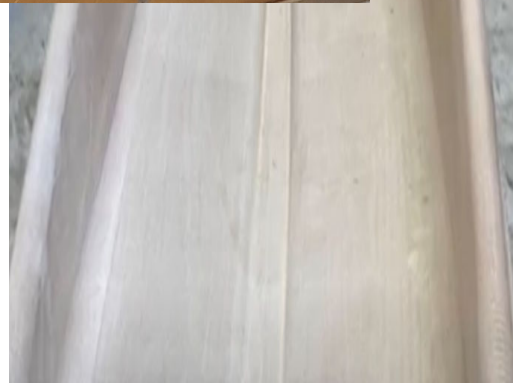
Extruder for printing CEAD E25

- 80-400°C
- Throughput 5-12 kg/h
- Nozzles – 2-18 mm
- Material dryer/feeder 50-185°C, 100 l

Steering console
Size: 56x45x65 cm
Nozzle: 6 mm
Layer height: 3 mm
Duration about: 4 hours



Europaan unionin osarahoittama

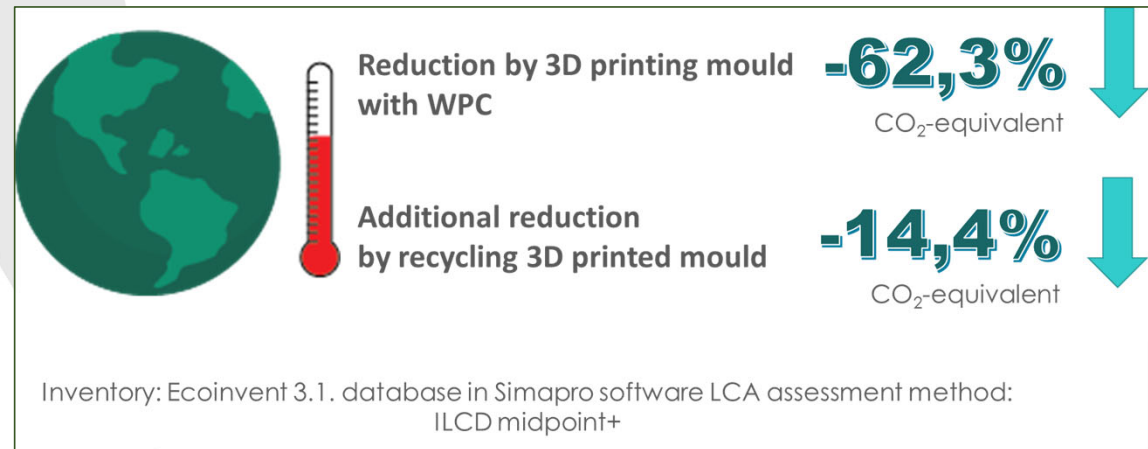
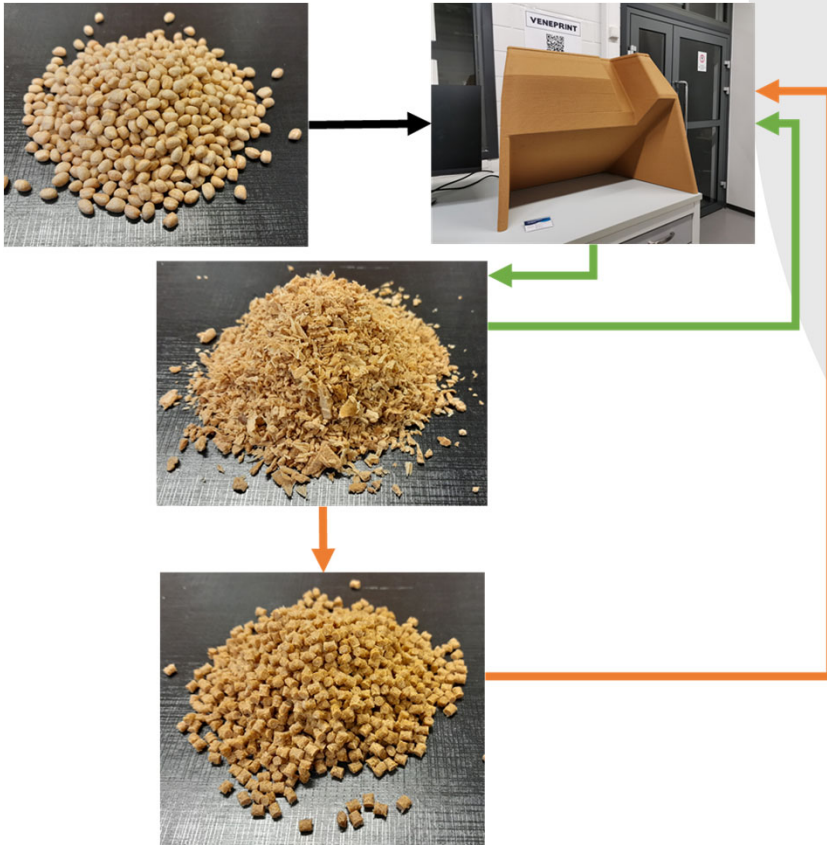


Size: 390 x 51 x 21 cm
Printed in 3 parts
Nozzle: 9 mm
Layer height: 4 mm
Total printing time 12 h
Milled after printing to final dimensions.
Milling time 1 h



<https://youtu.be/ALjld6m35GE>

Recycling



Pictures: Simo Huhtanen

Other piloting
infrastructure

Liquid biogas production pilot



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Havainnekuva: Umw- und Ingenieurtechnik GmbH Dresden.

Chemplant – chemical processing pilot



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Thank you for your interest!

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