

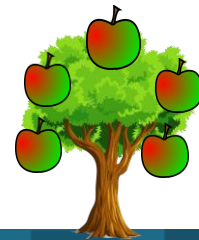


VTT

Muovien kulutuksen vähentäminen luonnonkuitujen avulla

**SYKE Kiertotalouden kirittäjät 2021 –webinaari
29.9.2021
Harri Kiiskinen / VTT**

28/09/2021 VTT – beyond the obvious



Renewable materials

Replacing fossil-based raw materials with renewables.

We have to change the direction.

1. Climate change

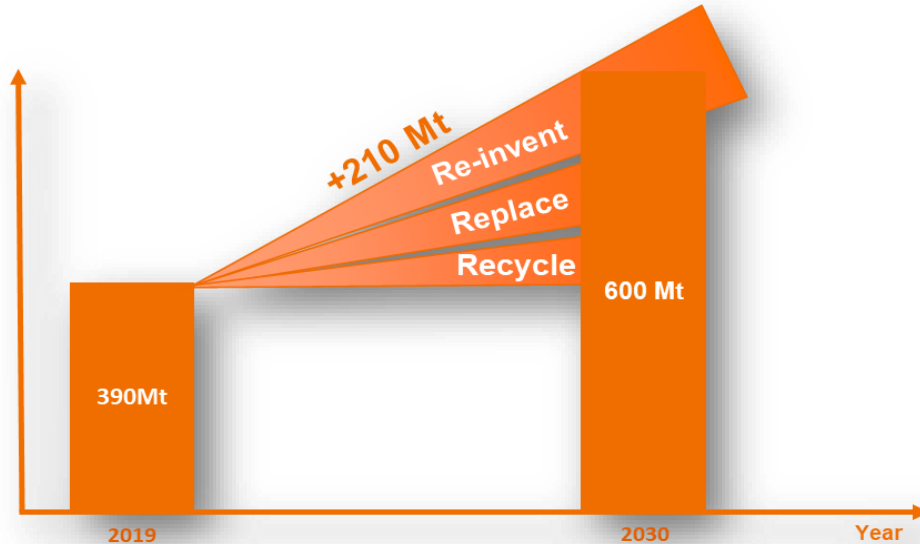
- Climate change is real and happening. We need to find new alternatives that are overall more sustainable option to fossil based materials

2. Littering

- World is drowning in single-use materials, many of which end up in nature and take hundreds of years to decompose. We need to find material solutions to tackle littering

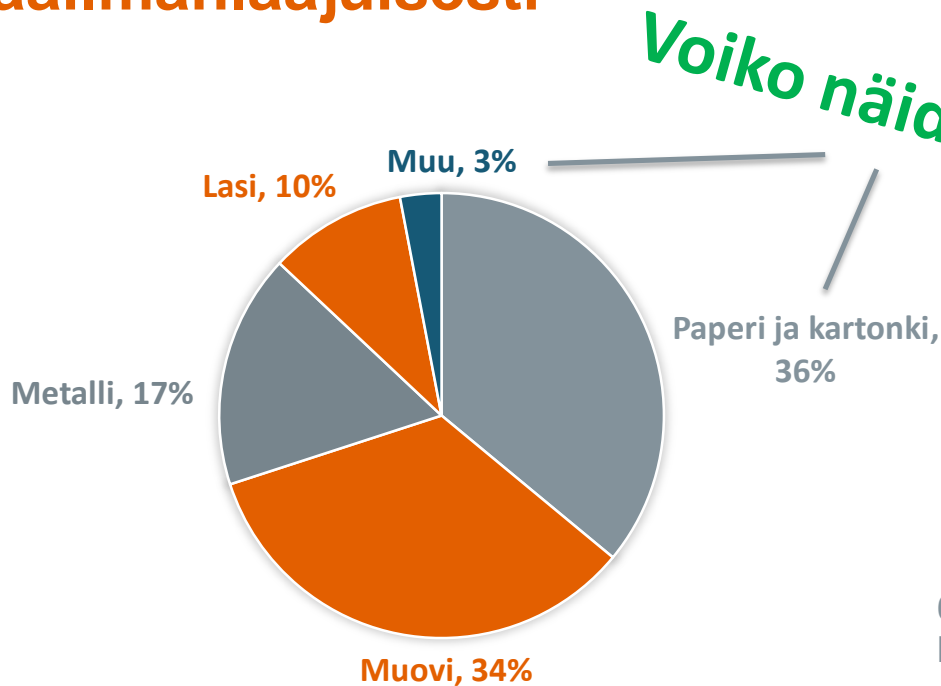
3. Resource scarcity

- It's inevitable that we will run out of fossil raw materials if we do not make a shift towards renewable sources
- Efficient food distribution is essential to minimize food waste



Global production of plastics

Pakkauksissa käytettävät materiaalit maailmanlaajuisesti

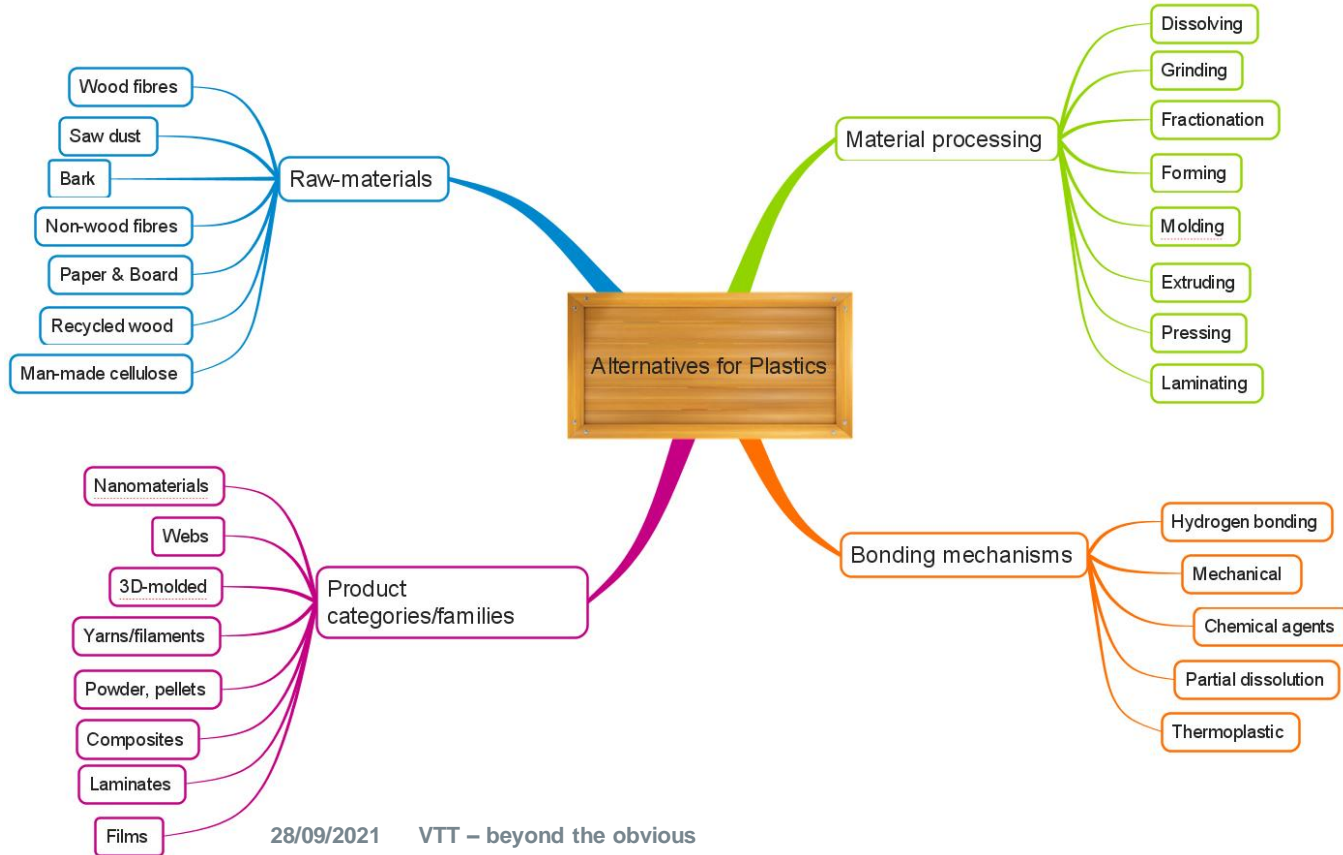


Voiko näiden osuutta kasvattaa?

64.7 % pakkausmateriaaleista kierrätettiin Suomessa vuonna 2016

Piloting Alternatives for Plastics

Great amount of opportunities – up-scaling needed!



Examples of Material and Product Demos



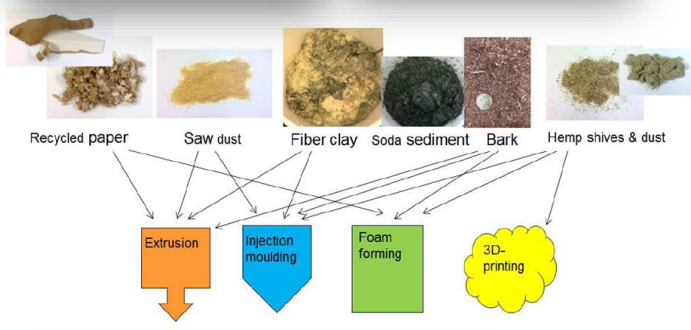
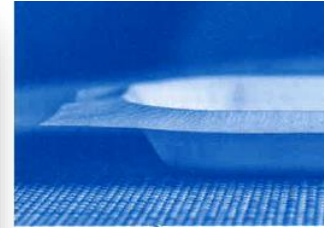
3D-PRINTING OF CELLULOSE BASED MATERIALS BY NSCRYPT METHOD



FOAM FORMED INTERIOR ELEMENTS



FOAM MOLDING



CASTED WOOD - EXPERIMENTS WITH WOOD DUST AND NANO CELLULOSE



FOAM FORMED NON-WOVENS FROM YARNS AND FIBRES



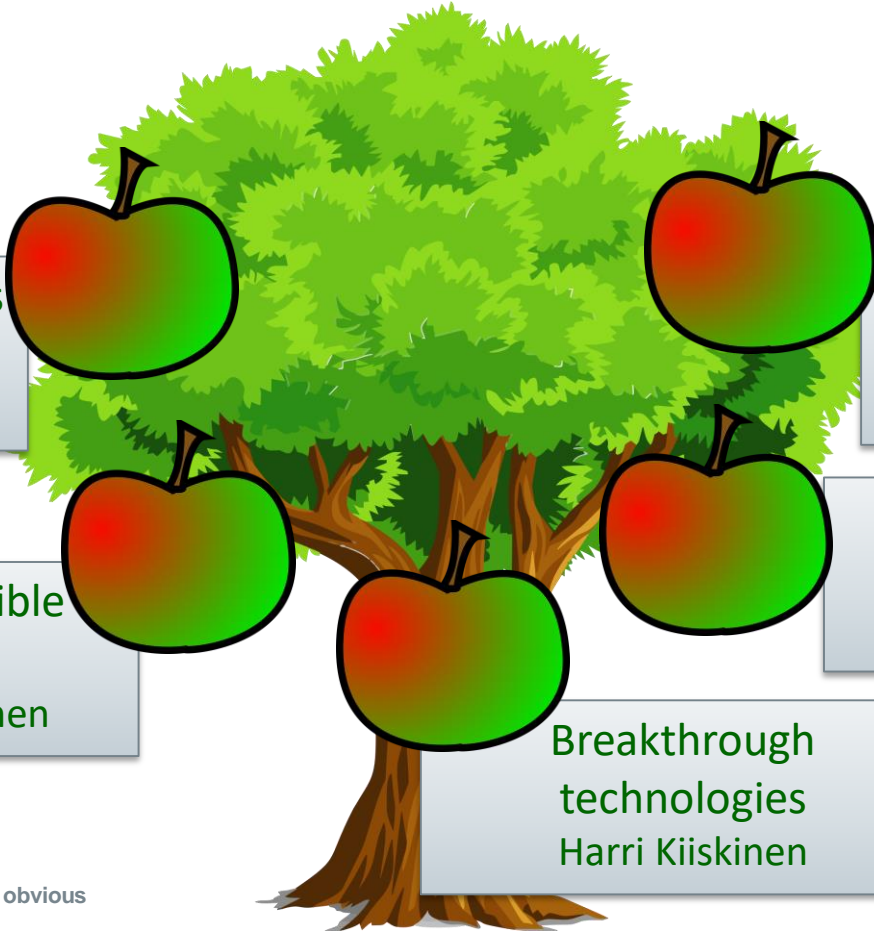
FOAM FROM A HARM TO AN ASSET



3D PRINTED LACE FROM PULP FILAMENTS



Focus areas of the Piloting Alternatives for Plastics



Cellulose-based wipes
and hygiene solutions
Taina Kamppuri

Cellulose-based high
performance materials
Jaakko Asikainen

Highly extensible
webs
Kristian Salminen

Sustainable insulation
solutions
Elina Pääkkönen

Breakthrough
technologies
Harri Kiiskinen

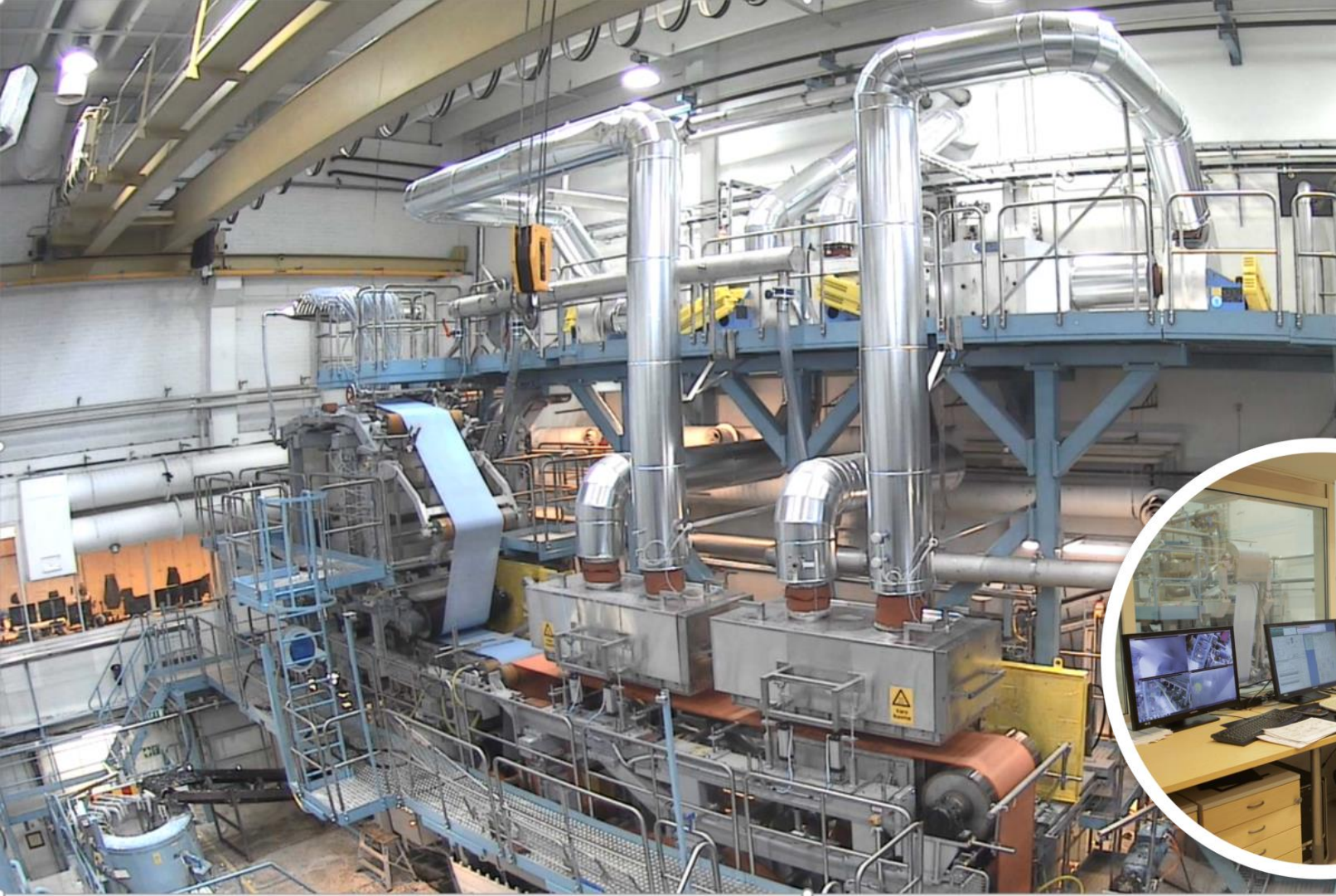
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SUORA



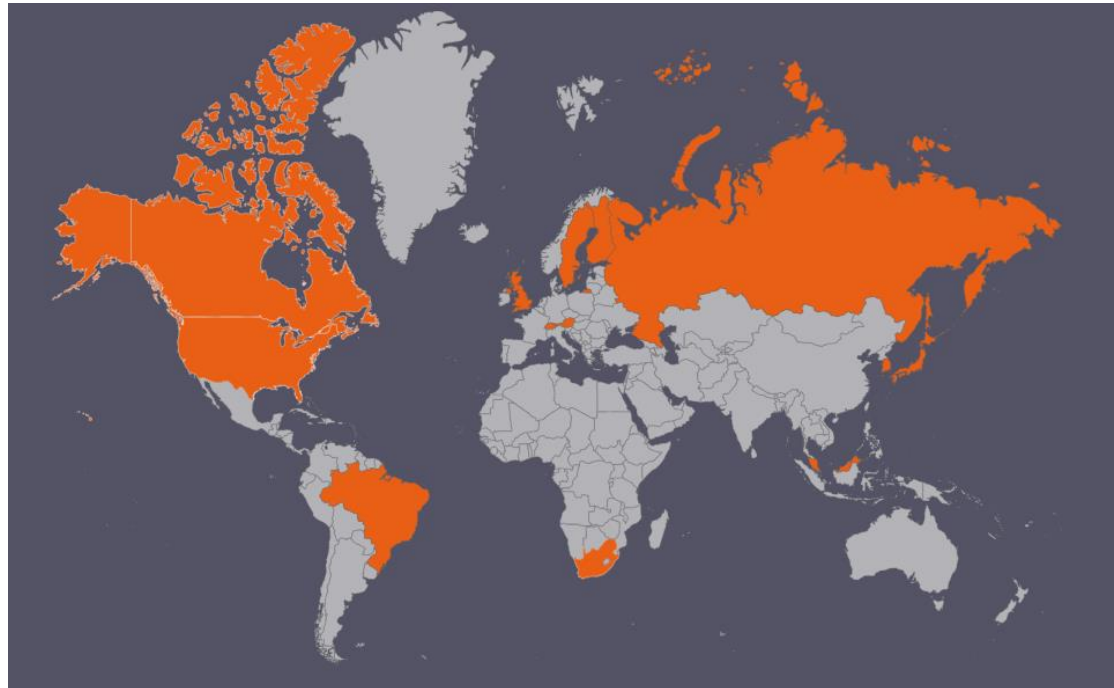
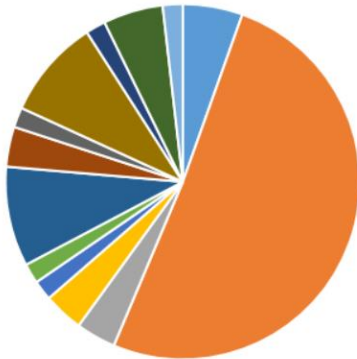
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SAMPO



International PAFP Program

- 55 Companies
- 13 Countries
- 6.9 M€
- 3.4 years



VTT – beyond the obvious

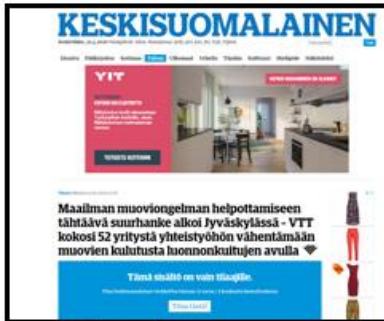
Piloting Alternatives for Plastics

Program partners



PAfP in media

- TAPPI Paper 360° Top Power list
- Keskisuomalainen
- Kaleva
- ipw News
- Bioplastics News
- Scientific Journal
- Canadian Biomass
- Process industry match
- Vastuullisuus uutiset
- O Papel May Issue
- Appita Journal



Vaahtorainaus mahdollistaa uudenlaisten kuitutuotteiden tekemisen



Pakkaaminen ja pehmusteet



Kevyt, muovattava kرتونki



Muovipussin korvaaja



Ääneneristys



Kuitukankaat



Lämmöneristeet



Kasvatusalusta

Tulevaisuuden kuitupakkauksia?



100%
BIO-BASED
RECYCLABLE COMPOSTABLE



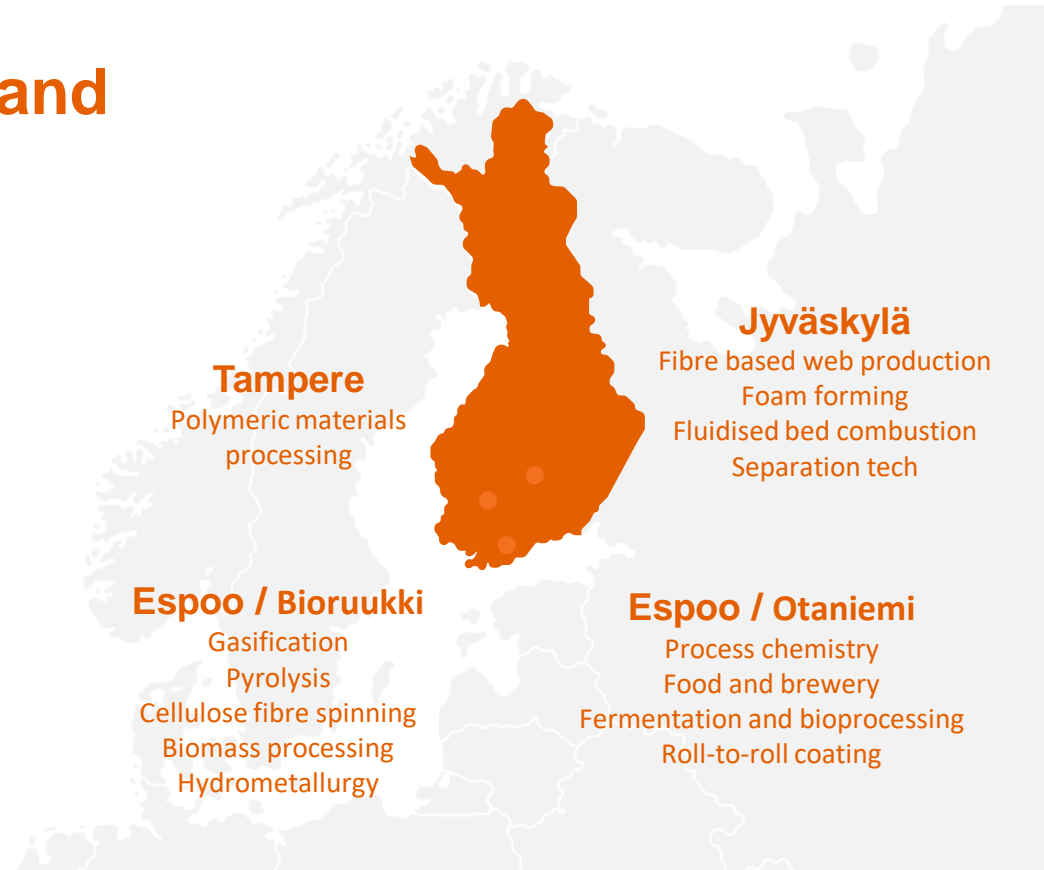
Kaikki demonstraatiot tehty puukuiduista @VTT

Regional innovation hubs with national,
European and global impact

VTT pilot plants for bio and circular economy

Key features of VTT pilots:

- We cover the entire development chain from raw materials to end products
- Two types of pilots: Process specific and multi-purpose
- Scale-up of own and customers' technology development



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the obvious



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