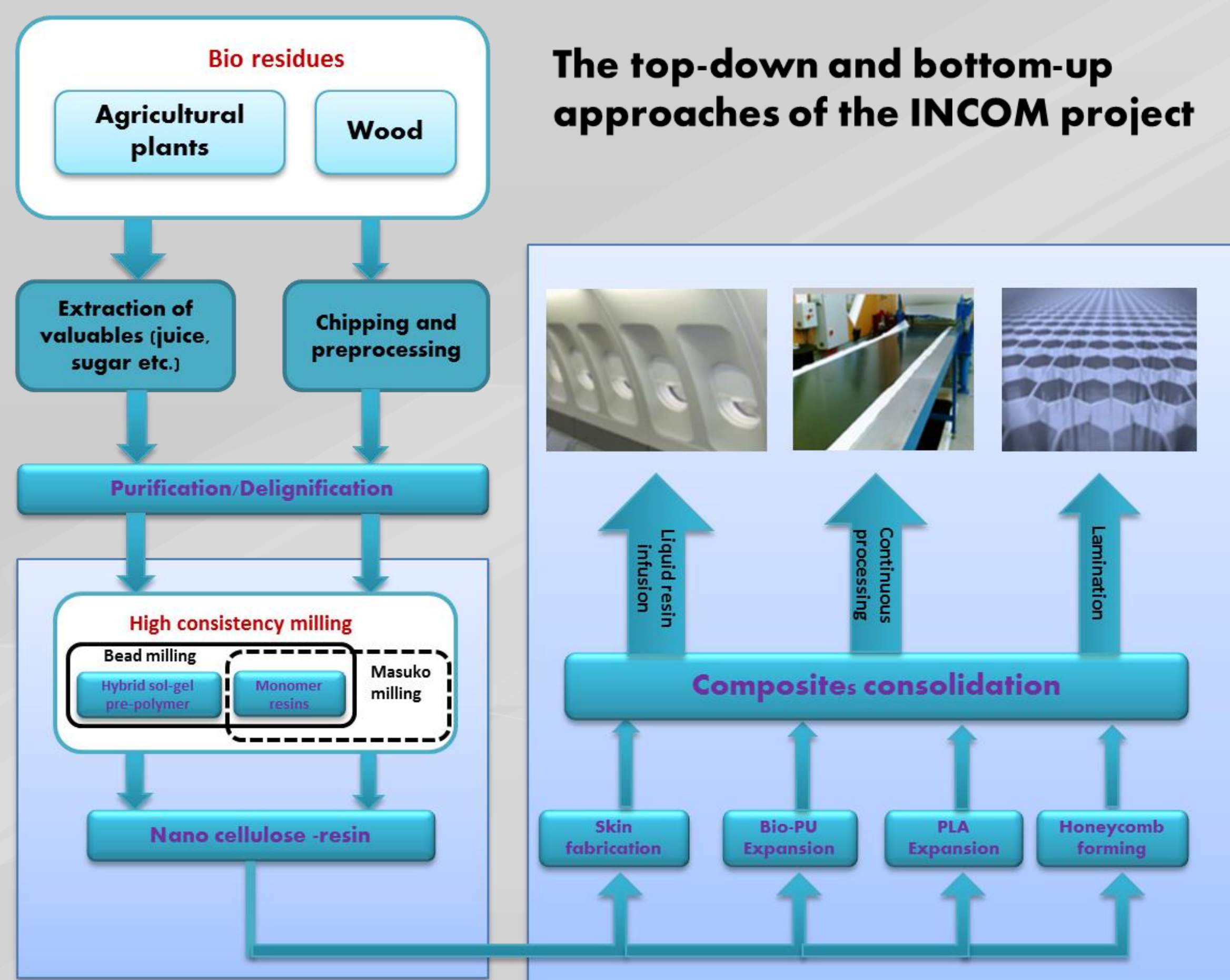


# Industrial Production Processes for Nanoreinforced Composite Structures

## Aim

The aim of the INCOM project is to develop technoeconomically viable solutions and production methods for lightweight structures based on advanced sustainable materials for use in sporting goods, vehicles and aeronautical applications.

## INCOM modules



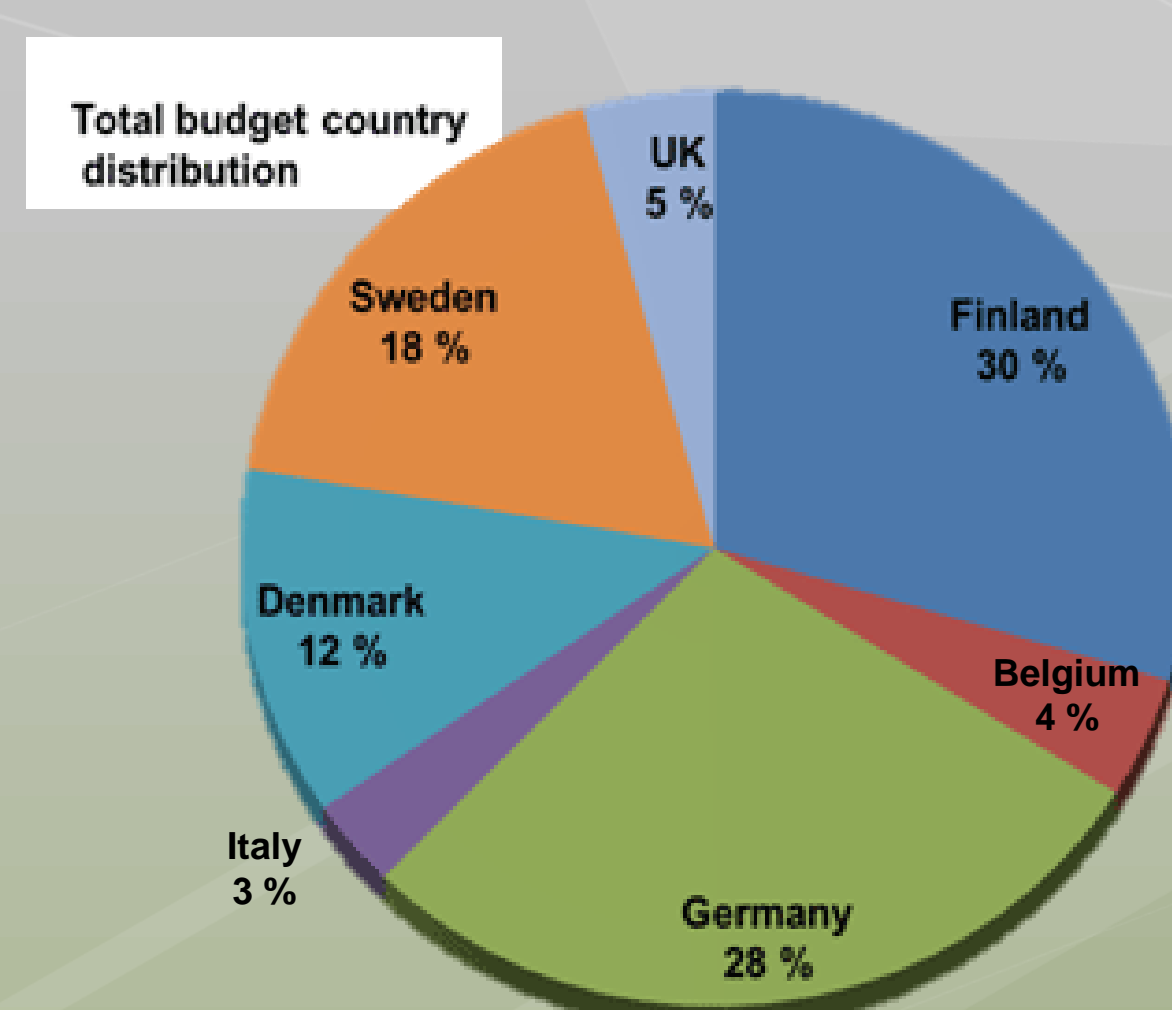
Overview of the main modules of the INCOM

## Who are we:

- Partners from industrial participants and European institutes and universities
- We work within biocomposites, processing and coating technologies
- Whole production chain from bio-based raw materials processing to different fields of applications is included



13 partners from Finland, Sweden, Denmark, England, Germany, Italy & Belgium



## Nanofibrillation approaches

Two approaches are used for the manufacturing and modification of NFC:

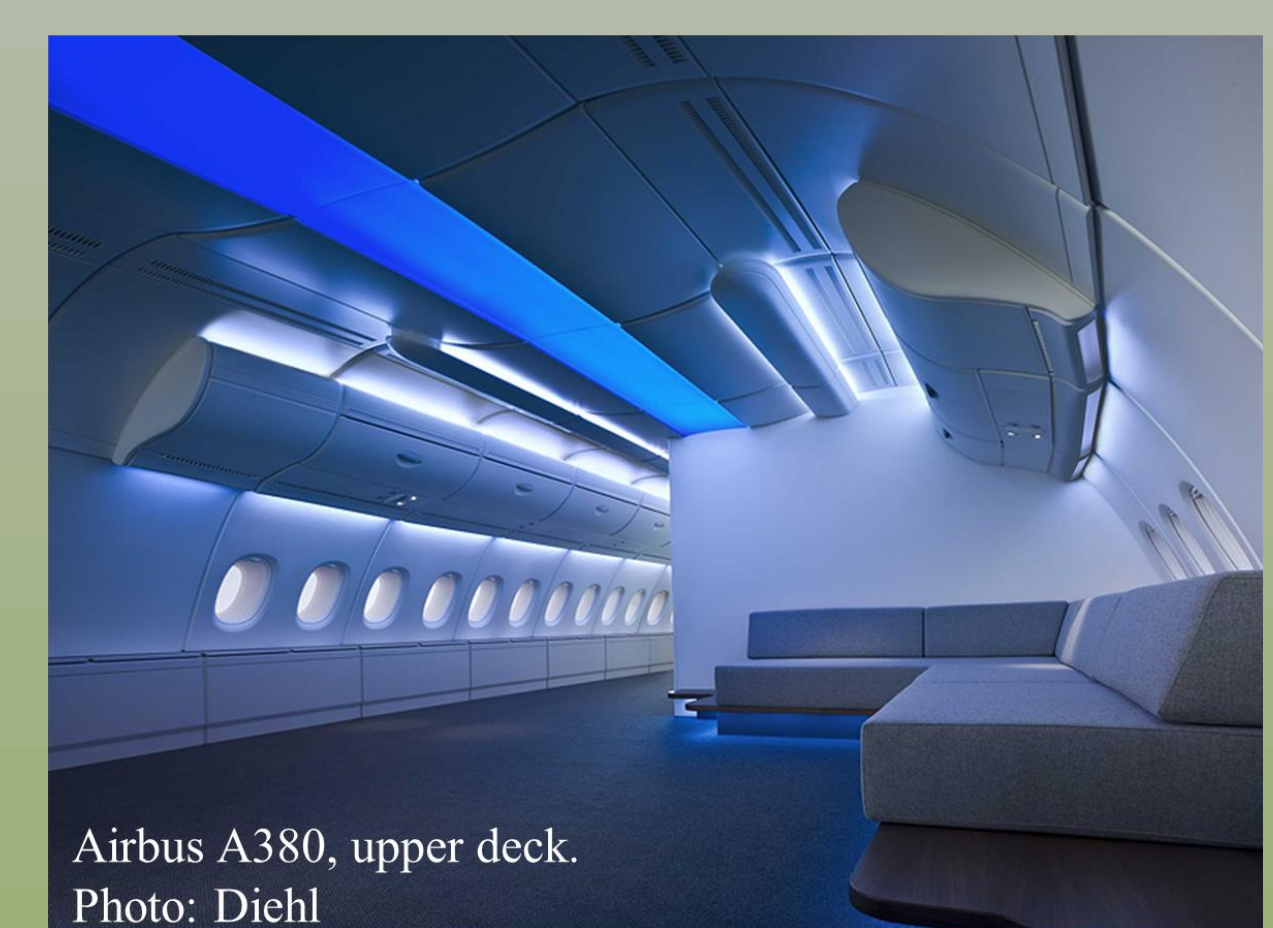
- Nanofibrillation of cellulose in a pre-polymer (monomer or oligomer) medium.
- Nanofibrillation in aqueous and other media and the optimization of the nanofibrillation of bioresidues (e.g. carrot bioresidues).

## Nanomaterial in all components of the sandwich structure

Resins and sol-gel coatings with functionalised nanofibrillated cellulose are used in composites as well as in cores and skins of structural sandwich composites, to enhance properties.

## Quality, Properties, Safety and the environment

- The materials are constantly tested, and numerical models are used to simulate mechanical behaviour and facilitate industrial upscaling.
- LCA (Life Cycle Assessment) and LCC (Life Cycle Costing) are used continuously to provide ecodesign feedback to project partners.
- Health and safety aspects are also taken into account through a constant monitoring of existing national/international standards and health and safety related studies on nanocomposites.



Airbus A380, upper deck.  
Photo: Diehl

Demonstrators: Automotive components, airplane cabin parts and sporting goods are being produced

## Contact

Lisa Wikström  
Tel. +358 40 861 4421  
lisa.wikstrom@vtt.fi

Adam Snietka  
Tel. +49 2296 803-55  
adam.snietka@vma-getzmann.de

