

CAPABILITIES GENERATED BY THE PROJECT

The following capabilities have been generated by the Innovood project:

- The new database with data on many properties of importance for different wood-based industries, including measurement data on properties of stands, trees, wood, knots, logs, boards, chemical composition, fibres and pulps of Norway spruce and Scots pine trees sampled in Sweden and Finland.
- New raw material data, expanding the existing stem bank databases of VTT and wood and fibre databases of STFI-Packforsk on properties of various forest resources, used to reach for more efficient allocation and processing.
- New models for wood density and fibre dimensions, describing averages of individual annual rings from pith to bark in arbitrary stem cross-sections.
- New methods for identification of the most efficient and significant independent variables and model structures.
- The new system of integrated models for estimation of differences in growth and in wood and fibre properties within and between trees and stands. The system includes the RetroSTEM simulation system for estimating growth of wood and knots in previous years from current measurements on trees.
- The new “Innovood Tree Visualiser” tool for simulation of growth and property distributions within stems at various growth conditions and for visualisation of these property variations.
- The web-based version of the Tree Visualiser, with functions useful in education, etc. It also includes measurement data on a set of trees, useful to visualise examples of trees grown under different conditions.
- New models for chemical composition of wood and pulp properties of wood of various origins, based on a limited sub-set of the samples.
- New data on within annual ring variations from measurements with microscopy at Metla and with SilviScan at STFI-Packforsk, providing a better understanding of the full property variability on the fibre level, for instance in pulps.
- The InnoSIM model system and software developed at VTT for simulation of whole conversion chain – from the forest to the sawn timber products and components. It is a new research tool especially for designing future manufacturing processes, new type of products and new harvesting strategies. This is possible due to very accurate description of wood raw materials, processes and products. The InnoSIM software is integrated with the RetroSTEM growth simulation system, which provides virtual stems as additional input data.
- Results from use of InnoSIM, providing a basis for optimization of future conversion processes based on product specifications and for valuation of potential forest stands to be harvested.
- Improved models and procedures to predict pulp properties resulting from use of wood raw materials of different origins, developed by Södra Cell for investigations at Södra pulp mills.
- The project has strengthened the Nordic innovation system through fruitful networking between research groups with different specialties in Sweden and Finland.