

Forest-Based Sector  
Technology Platform



# The FTP Strategic Research Agenda

## Value Chain: Wood Products



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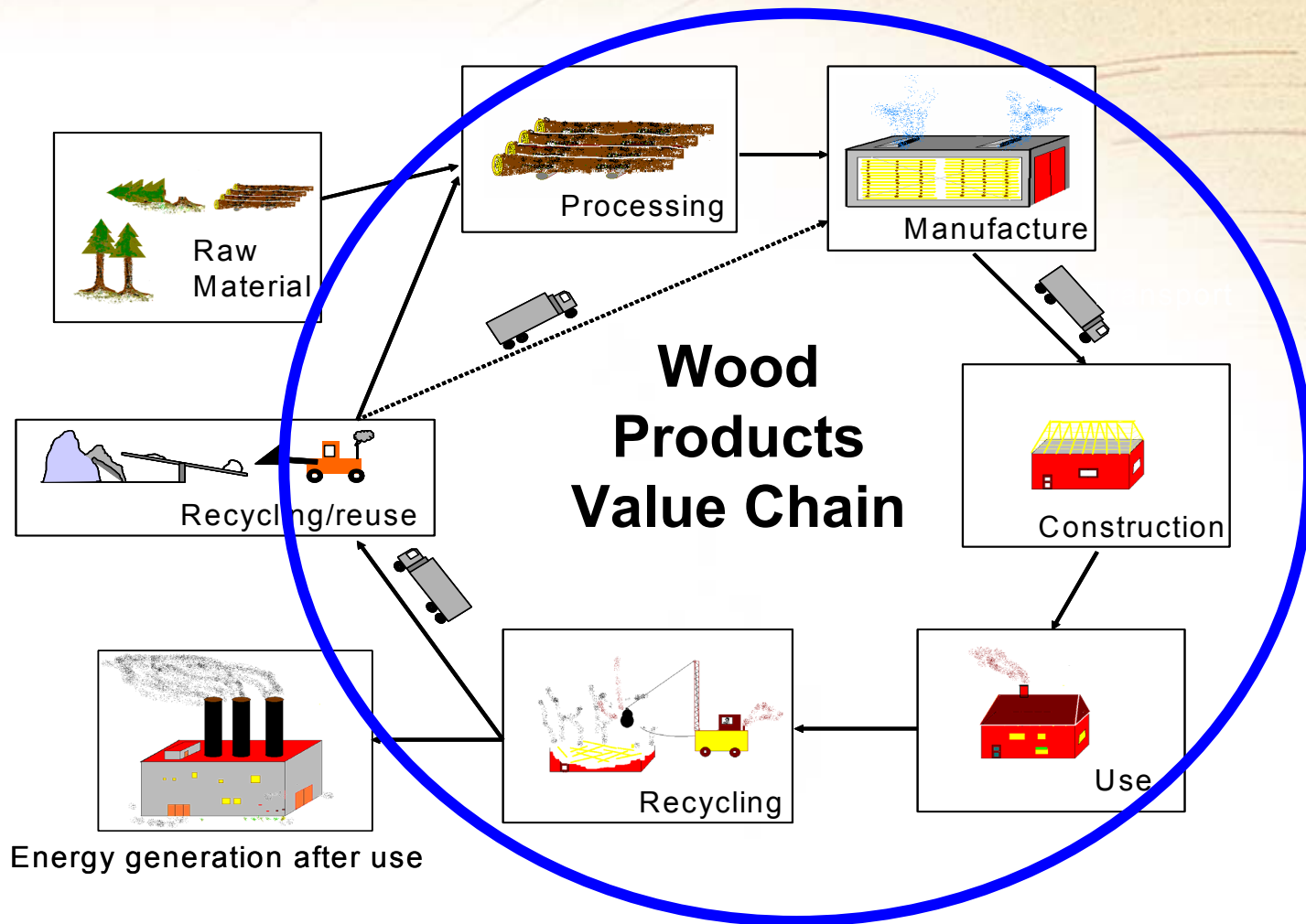
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# Value-Chain domain



# Key Challenges

The socio-economic impact of FBI in EU25					
2001	production value M €	value added M €	number of persons employed	number of enterprises	value added per employee
forestry			387.000		
woodworking	103.488	32.424	1.188.400	190.570	27.284
manufacture of pulp, paper & paperboard	73.191	23.447	254.300	2.279	92.202
converting	76.795	23.706	487.400	16.230	48.638
printing	103.457	43.518	1.038.500	125.554	41.905
FBI	356.931	123.095	3.355.600	334.633	36.683
total manufacturing	5.339.796	1.534.729	34.005.800	2.176.501	45.131
FBI % of total	6,7%	8,0%	9,9%	15,4%	
Source: Eurostat					

# Key Challenges

- To strengthen a sustainable industry and society, which is more aware of the forest resource potential
- To mitigate climate changes and greenhouse gases emissions based on increased use of wood
- To create a competitive knowledge-based industry and society



# Key Opportunities

1. Reduction of greenhouse gases emissions up to 15% in 2015 and up to 25% in 2030
2. Profiling the SME dominated woodworking industries as a highly innovative one
3. Building excellent multidisciplinary competences along the wood products chain



# Research Priorities

**RP 1A-2:** Advanced materials and composites based on wood constituents

**RP 1B-4:** Systems solutions for the use of wood and wood-based products

**RP 1B-5:** Knowledge-based building with wood

**RP 1B-6:** Upgrading the characteristics and behaviour of wood and wood-based products by novel treatments

**RP 2A-2:** New generation of wood-processing technologies

**RP 2A-3:** Adaptation of processing technologies for the production of wood products with new functionalities

**RP 3A-3:** Provision of appropriate raw material for specific uses along the wood products value chain (will be merged with forestry!)

**RP 3B-2:** Integration of recycling aspects in process and product development along the wood products value chain

RP 1A-2: **Advanced materials and composites based on wood constituents**

**WHAT OUTCOME**

- ◉ different materials with unique properties
- ◉ new structured and functionalised cellulose preparations with specific properties for technical, medical, health, pharmaceutical, and food applications
- ◉ technologies for manufacturing 2D and 3D shaped composites based on wood, pulp, regenerated cellulose fibres, other biobased materials and cellulosic structures.

## RP 1B-4: **Systems solutions for the use of wood and wood-based products**

### **What outcome**

- › innovative and environmental friendly solutions for buildings, furniture, wood-based packaging materials and transportation systems.
- › tremendous reduction of noise; clean inside air, reduction of allergies, humidity regulation, etc.
- › use of natural anti-septic properties of wood (in contact with food, for transport and packaging of goods)
- › multi-material solutions taking advantages of different materials
- › novel solutions for fast and flexible house building, wall cladding, flooring etc

## RP 1B-5: **Knowledge-based building with wood**

### **What outcome**

- › novel building concepts (sound insulation, fire protection, hazard safety) for single and multi-storey houses, incorporating protection by design
- › advanced construction methods (pre-fabrication, gluing, joining at the construction site)
- › consideration of recycling aspects (separation of materials, marking, coding) and improved risk assessment
- › reduction of energy consumption of buildings, energy demand for production of building materials and erection of the buildings

RP 1B-6: **Upgrading the characteristics and behaviour of wood and wood-based products by novel treatments**

**What outcome**

- ⦿ new treatments and techniques based on biotechnology
- ⦿ wood and wood-based products with improved behaviour in terms of strength, shape stability, durability, hydrophobic, self-cleaning and anti-static properties, emissions, etc.
- ⦿ novel bio-based agents for environmentally friendly methods for gluing, surface treatment, finishing and preservation
- ⦿ wood-based products with excellent environmental profile
- ⦿ homogenous, predictable and reliable properties

## RP 2A-2: **New generation of wood-processing technologies**

### **What outcome?**

- › innovative and safe production processes with integrated production chains and systems solutions
- › flexible production processes for a wider range of products
- › improved primary processing (e.g. sawing, chipping, slicing, peeling, drying, impregnation, modification, etc.)
- › reduction of losses due to degrade
- › integrated novel quality assessment technologies and advanced sorting and grading systems
- › advanced construction and building elements for rapid building and prefabrication
- › improved products for every day life .

RP 2A-3: **Adaptation of processing technologies for the production of wood products with new functionalities**

**What outcome**

- › combination of existing processes
- › use of advanced prediction tools (modelling) in combination with novel quality assessment technologies
- › optimum use of inherent wood properties and reduction of losses and down-grading

RP 3A-3: **Provision of appropriate raw material for specific uses along the wood products value chain**

**What outcome?**

- › early quality assessment and proper selection of materials at various stages along the forestry/wood chain
- › high degree of material efficiency
- › development of improved quality assessment techniques combined with prediction tools
- › optimum, allocation of raw material to different processing chains
- › improved quality specification and non-destructive control of final product quality

RP 3B-2: **Integration of recycling aspects in process and product development along the wood products value chain**

**What outcome?**

- › provisions for facilitating identification of hazardous components and development of systems which are easy to be disassembled
- › new class of wood-based products , safe, durable, provide long services
- › reduction of GHG emission by forming a huge pool of fixed carbon.
- › ecologically sound concepts for production of every-day life products
- › high performance novel wood products (e.g. engineered wood products, novel wood-based panels products, wood-plastic composites, modified wood, etc.) which allow reuse or easy recycling.

# Impacts

The proposed research priorities within the wood products value chain strongly support the goals of the EU policies (Lisbon, Gothenburg, etc) with respect to:

- › increasing the investment in RTD (3% GDP)
- › creating a sustainable knowledge-based industry and society

# Scientific challenges

**Cross border multidisciplinary research** will lead to:

- › novel knowledge, skills and innovation
- › new generations of advanced technologies and wood-based products

Breakthroughs in risky joint research activities will play the key role for keeping the European woodworking industries as the global leader.