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Sustainable Wood Construction Chains

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°862942

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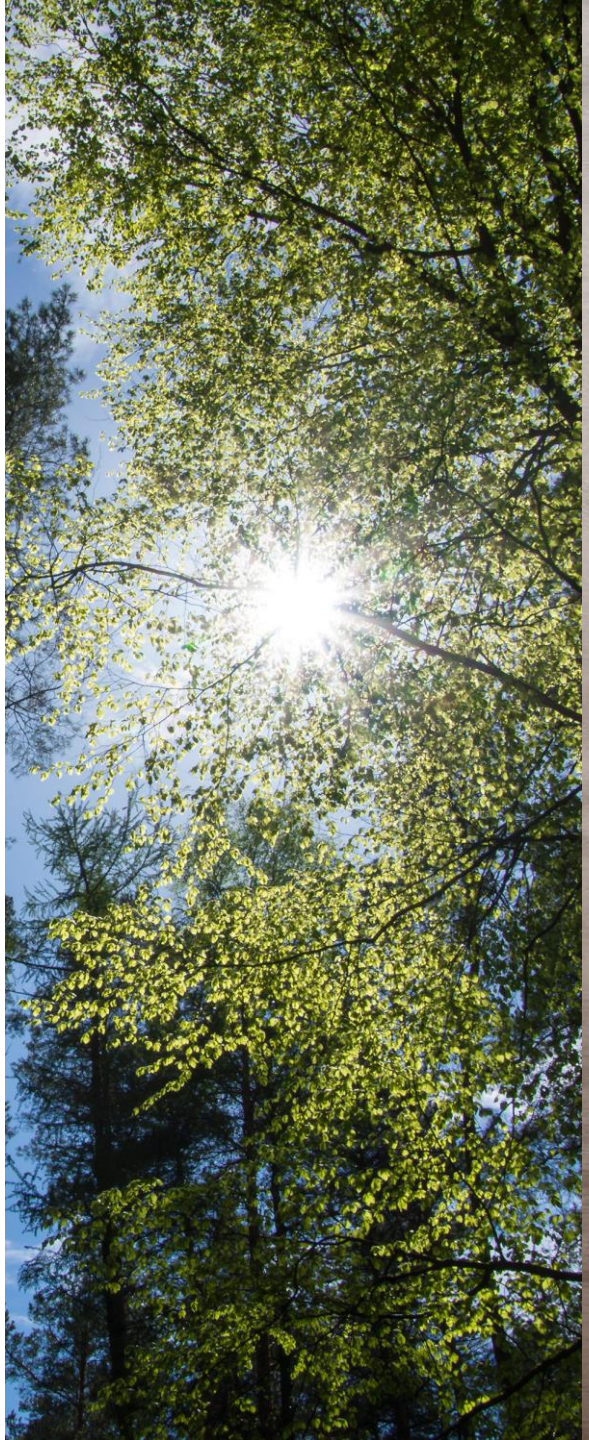
Wood – a sustainable material

- Rural areas (80% of the EU territory) face disadvantages such as less access to public infrastructure and services and higher risk of unemployment, poverty and social exclusion.
- Wood is an extremely versatile and lightweight building material. Wood construction market is growing and diversifying worldwide (CLT, Glulam, prefabrication).
- Renewable material par excellence: Wood stores CO_2 in solid products throughout the whole life cycle for decades.
  → can significantly reduce carbon footprint of buildings
- Modernising cities through building with wood including multi-storey buildings, renovation, retrofitting, and urban densification is a great opportunity for the low carbon, circular economy.



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Main objective

- Demonstrate how **sustainable building with wood** can be optimized to foster both **rural development** and **urban transformation** whilst being connected with **sustainable forest management** in Europe.

- The core idea is to enable the possibility that a specific forest production area can be correlated with a typical medium sized building.

1 ha forest = ?

? = 1 building

- Two full-scale medium-sized demo buildings (Finland and France):
  - ✓ Innovative architecture and complete digitalization of value chain
  - ✓ Sustainable building products and systems
  - ✓ Creating benefits for rural areas

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‘Protector of the forest’

- **Basque mythological creature** who was believed to be a strong, savage but peaceful human-like spirit dwelling in the woods of the Spanish Pyrenees. His wife is called Basandere.

- Basajaunak (plural) were thought to protect flocks of livestock by alerting the shepherds about storms or wolves, to build megaliths, and to teach skills such as farming and ironworking to humans.

- Basajaun as project title in analogy to the idea that forests can be better protected through a sustainable use of forest products in wood construction, to generate positive benefits for rural communities.

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Project setup

- **Horizon 2020 Innovation Action grant agreement no. 862942**
  - Duration: October 2019 - September 2023 (4 years)
  - Total budget: 12.2M€ ◦ Total EC grant: 10M€
- **Consortium**
  - 30 partners from 12 countries
  - 8 RTOs, 3 universities, 15 companies, 5 other public and sectoral
  - Competence in wood construction systems and buildings, innovative materials, architecture, forestry, digitalisation, environmental assessment, development
  - Regions: Northern, Central and Southern Europe
- **Coordinator**: Tecnalia Research and Innovation Foundation

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Consortium

- **Research**

- **Industry**

- **Public authorities**

- **Dissemination Exploitation**

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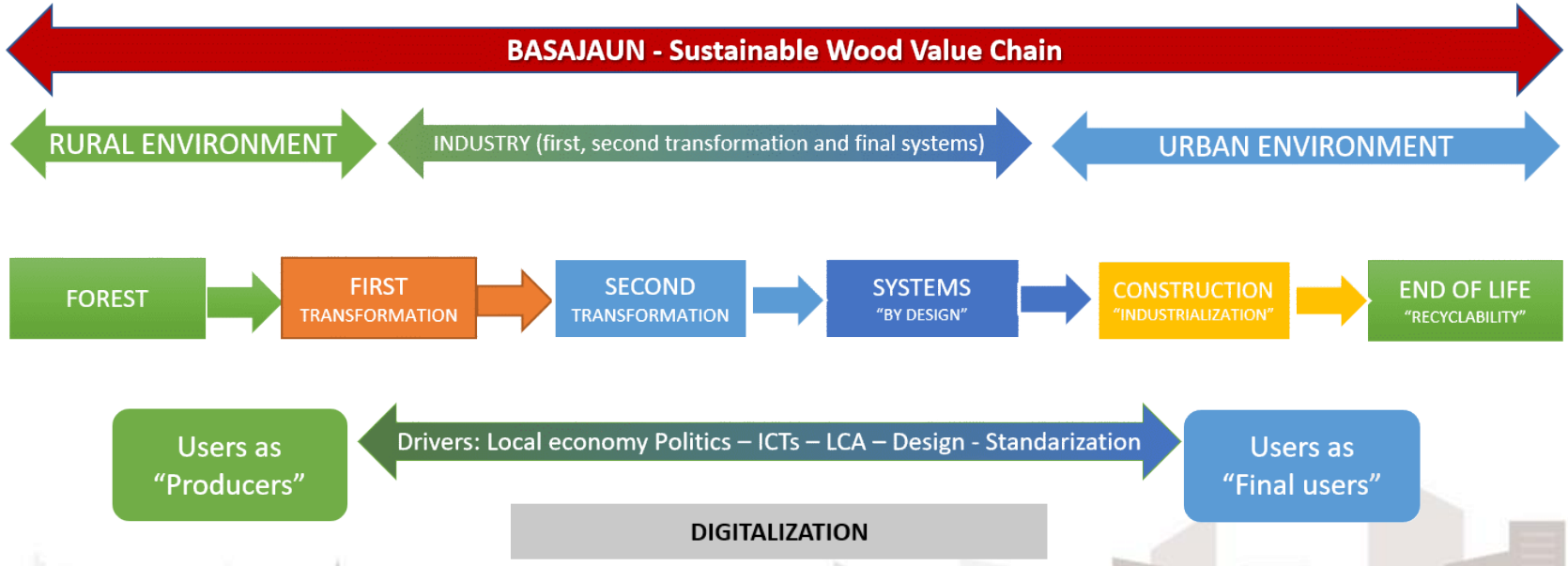
From forest to buildings

- **Digitalization of the whole chain**

  Driver of change in the sector: boost building performance and smart supply chains



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Main outcomes

1. **Studies and guidance reports about holistic building with wood**
   - LCA assessment, recyclability and eco-design of building products and systems
   - Wood as driver for sustainable development impacts in Europe's rural regions

2. **Innovative bio-based materials, products and constructive systems**
   - Thermoplastic composites, WPC foams and structural insulation panels
   - Waterborne coatings with fire-proof properties
   - Structural components, façades
   - Interior partitions and roof prototypes
   - Innovative fixing systems
   - etc.

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Main outcomes

3. **‘Forest to Building Digital Framework’ (F2BDF)**
   - Complete prototype of a digital twin to overcome gaps in the whole value chain

4. **Two full-scale demo buildings**
   - Bordeaux/France
   - Jyväskylä/Finland

5. **Exploitation/Communication**
   - Novel exploitation and co-creation platform for regional companies and stakeholders
   - Broad Dissemination and policy recommendations in the forest-based sector

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Expected impacts

The project delivers convincing evidence that sustainable wood construction is ready to tackle three global challenges at the same time:

- **Mitigation of the GHG emissions by the construction sector**
  Increased resource and/or energy efficiency, climate change mitigation and adaptation

- **Develop sustainable high-value materials and products for urban customers**
  Minimising pollution and decreasing the environmental footprint in the cities

- **Ensure rural development and employment**
  Enhanced connectivity of rural-urban areas and their contribution to a resilient, circular economy, providing decent jobs and prompting change to European landscapes

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Building a Sustainable Joint between Rural and Urban Areas through Circular and Innovative Wood Construction Value Chains

Horizon 2020 IA grant no. 862942

- Call: LC-RUR-11-2019-2020
- Duration:10/2019 – 09/2023 (4 years)
- Total budget: 12.2 M€
- Total EC grant 10M€

- Coordinator:
  Tecnalia Research and Innovation
  Javier.GarciaJaca@tecnalia.com

- Large consortium:
  30 partners in 12 countries

Expected outcomes

- Guidance on holistic building with wood: LCA, recyclability, eco-design
- Studies on wood as driver of regional development
- Digital twin ‘Forest to Building Digital Framework’ (F2BDF)
- Innovative materials & construction systems
- Two full-scale demo buildings
- Novel exploitation and co-creation platform
- Dissemination and policy recommendations

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