Advancing forest-based bioeconomy solutions to ensure resource supply meets growing demand

Topic 8.1 — Advancing forest-based value chains

Global Summit on “Advancing Sustainable Forest-based Bioeconomy Approaches”
23–25 February 2026, Vienna, Austria

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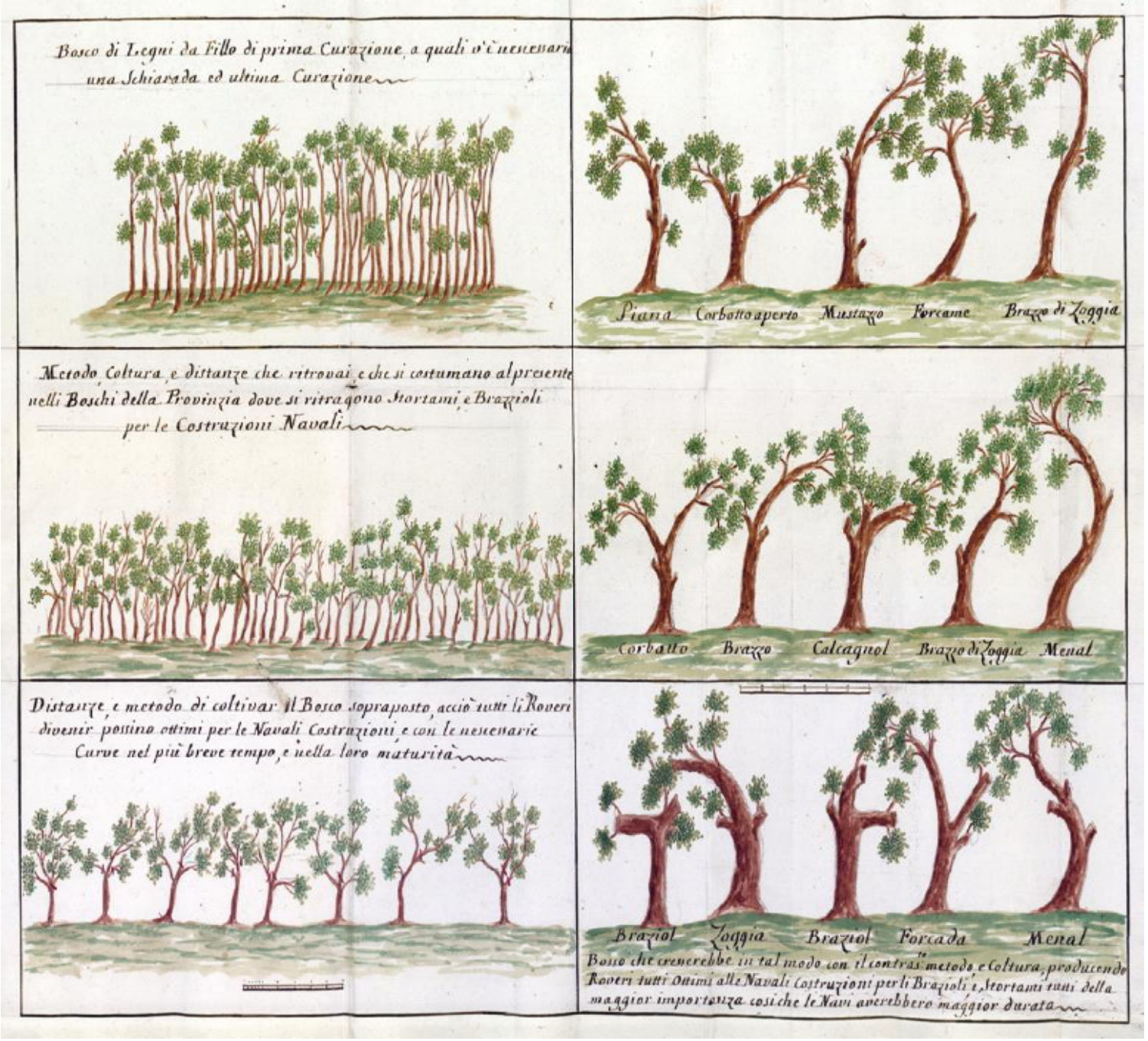
Department Chair

Vienna, 24. 2. 2026

Global demand for forest and non-wood forest products is set to rise sharply by 2050.

Meeting this demand will require more sustainable wood supplies and greater innovation and efficiency.



Forest-based value chains in the past

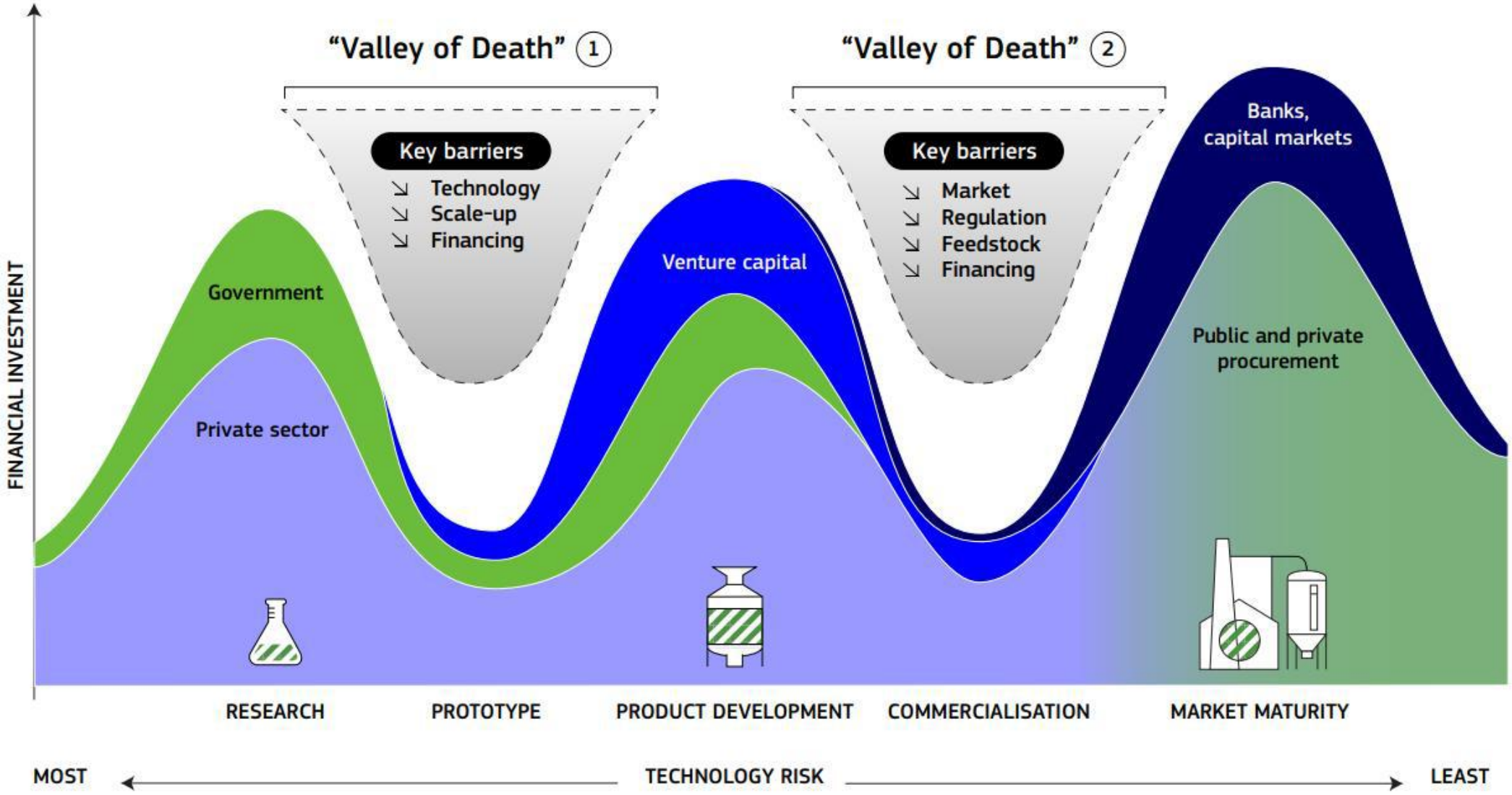
Illustration of the method of cultivation of **oak forest and various forms of pruning** of trees for the needs of the Venetian Navy – example from Istria

(G. C. Vittori, 1777, ASV, Senato, Arsenal, 133, 2). From Panjek (2015) http://www.hippocampus.si/ISBN/978-961-6963-35-0.pdf

Forest-based value chains today

(Dendro-spec; Jakub Sandak)

Two valleys of death in scaling bioeconomy in Europe



(A Strategic Framework for a Competitive and Sustainable EU Bioeconomy, 2025)

Five types of innovation can improve the ability of forest-based value chains to address global challenges (FAO, 2024).

technological, social, policy, institutional and financial

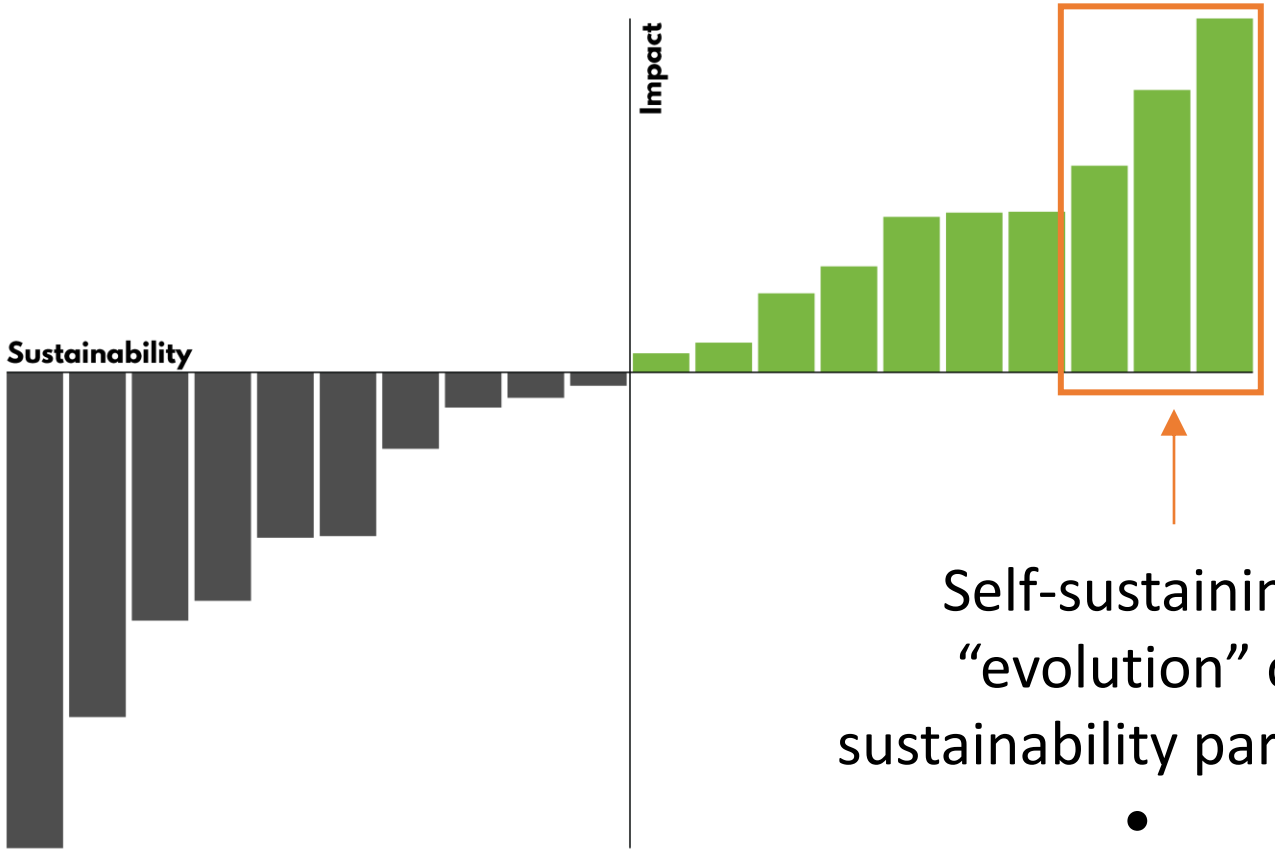
Key points discussed in 8.2 (Eric Hansen)

- Innovation is more than new products
- We need a healthy innovation ecosystem
- In our sector, a more innovative culture is needed
- Multi-actor collaboration can effectively facilitate innovation

Forest-based value chains for Regenerative Sustainability

Multiple sustainability targets:

- Environmental
- Human
- Social
- Economic



Self-sustaining "evolution" of sustainability paradigm

•

regeneration

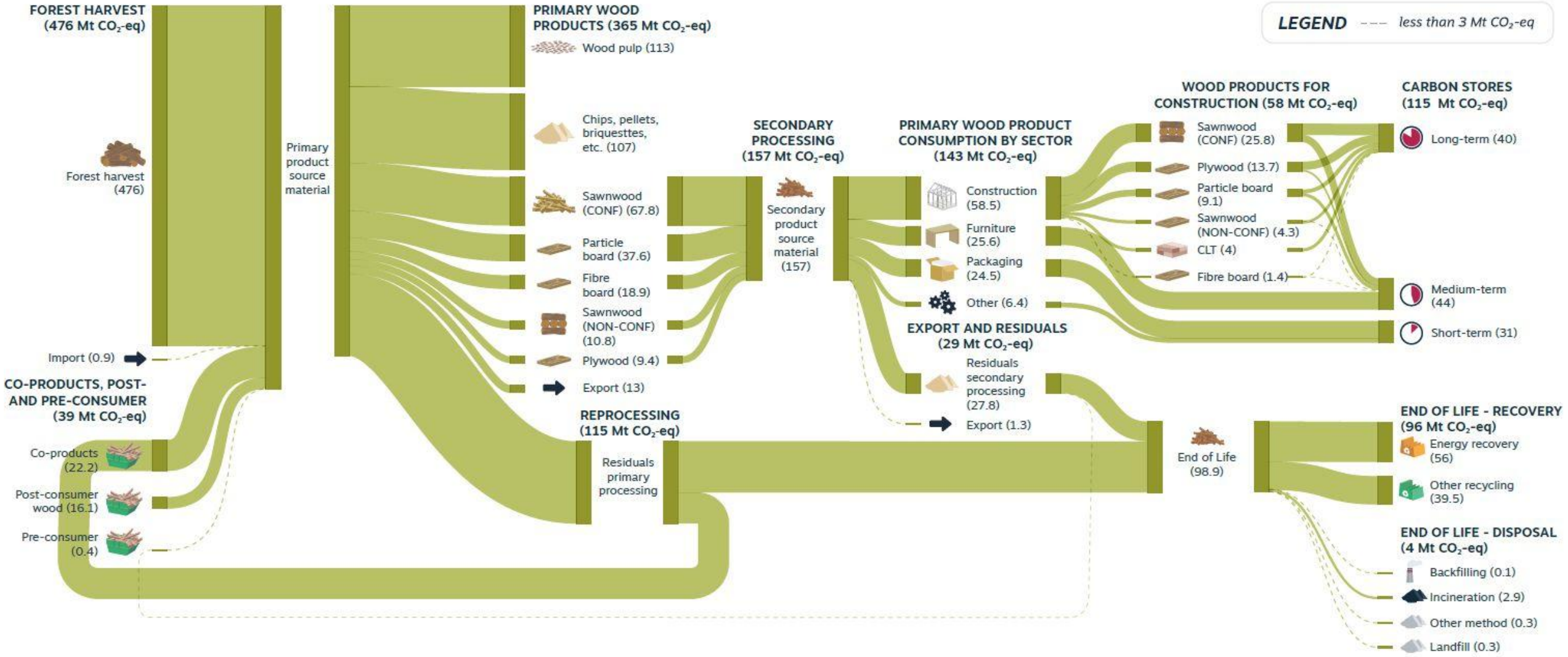
Michael Burnard based on Reed 2007, Mang and Reed 2012

Forest-based value chain

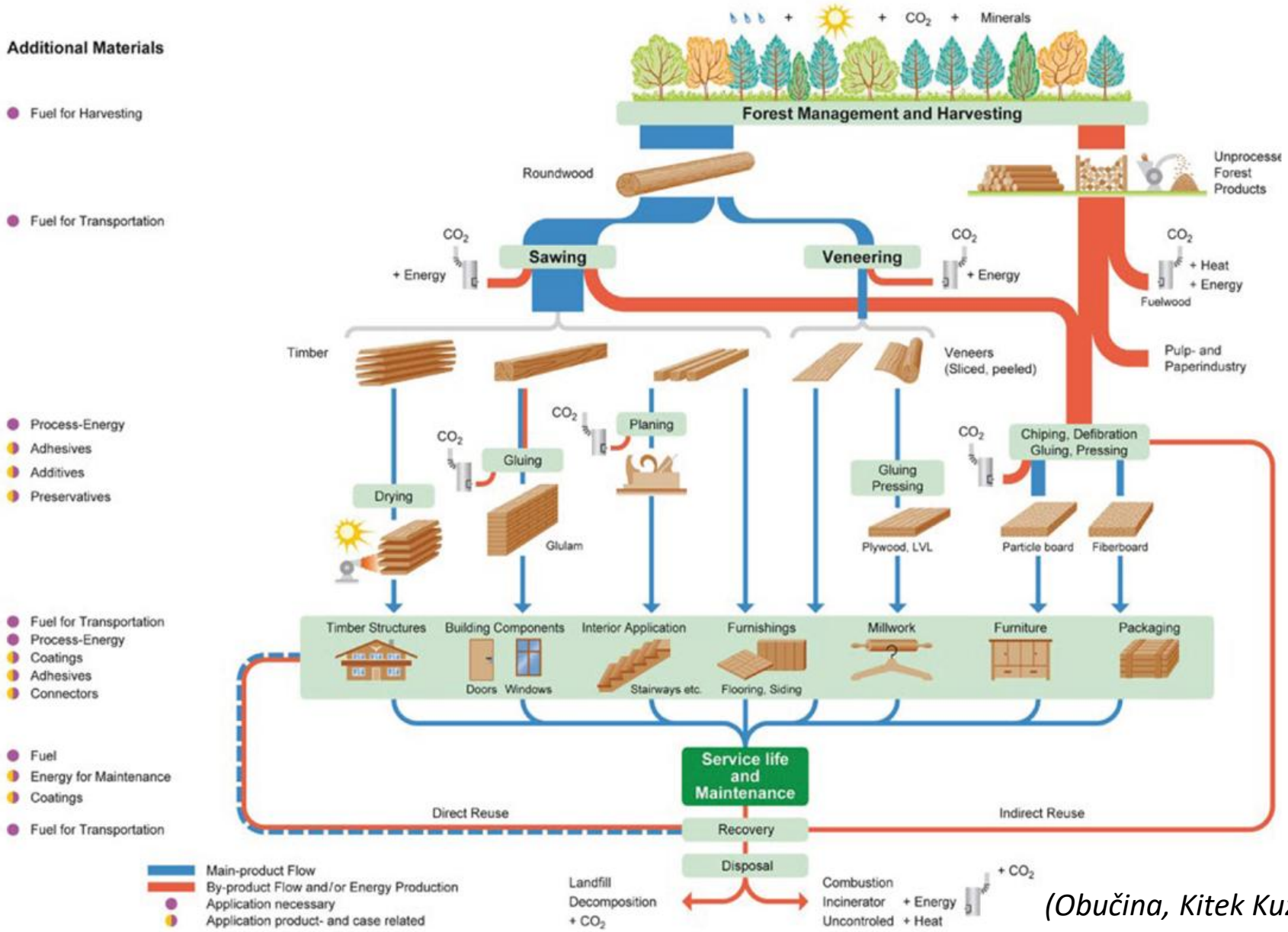
How to present it?

Forest-based value chain – Material flows in European wood value chains

https://www.probos.nl/en/publications/reports/288-reports-2026/3968-new-study-great-potential-for-long-term-carbon-storage-in-pan-european-wood-value-chains

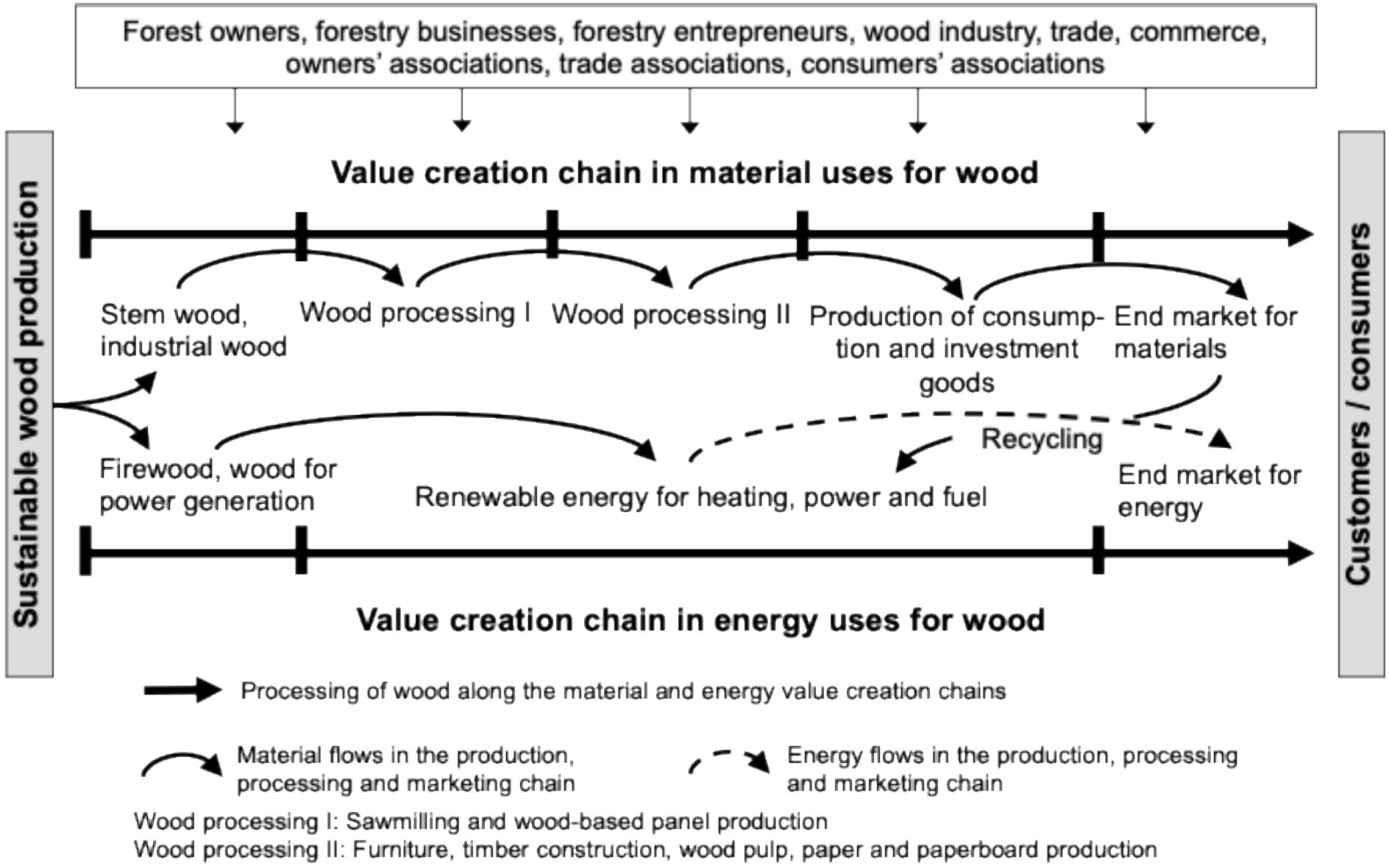


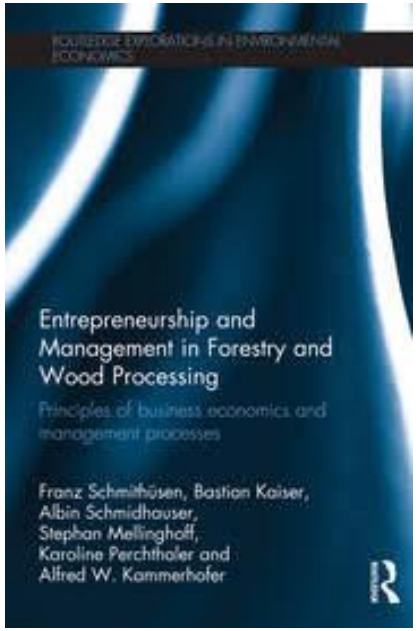
Forest-based value chain & Additional materials



(Obučina, Kitek Kuzman, Sandberg, 2017)

Forest-based value chain – chain in material & energy





Schmithüsen, F., Kaiser, B., Schmidhauser, A., Mellinghoff, S., Perchthaler, K., & Kammerhofer, A. W. (2014). *Entrepreneurship and Management in Forestry and Wood Processing: Principles of Business Economics and Management Processes*. Routledge.

Forest-based value chain

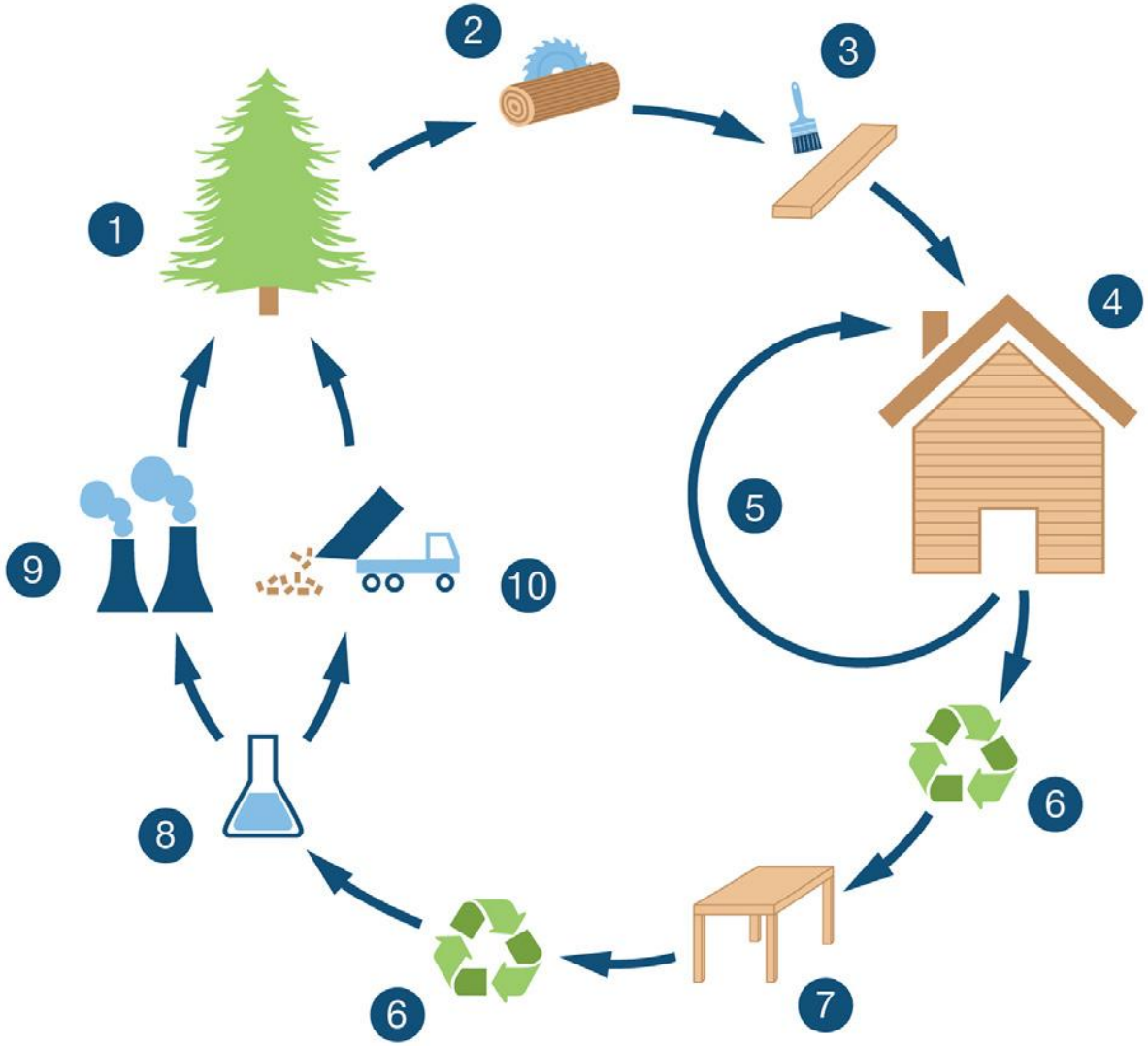
Resources

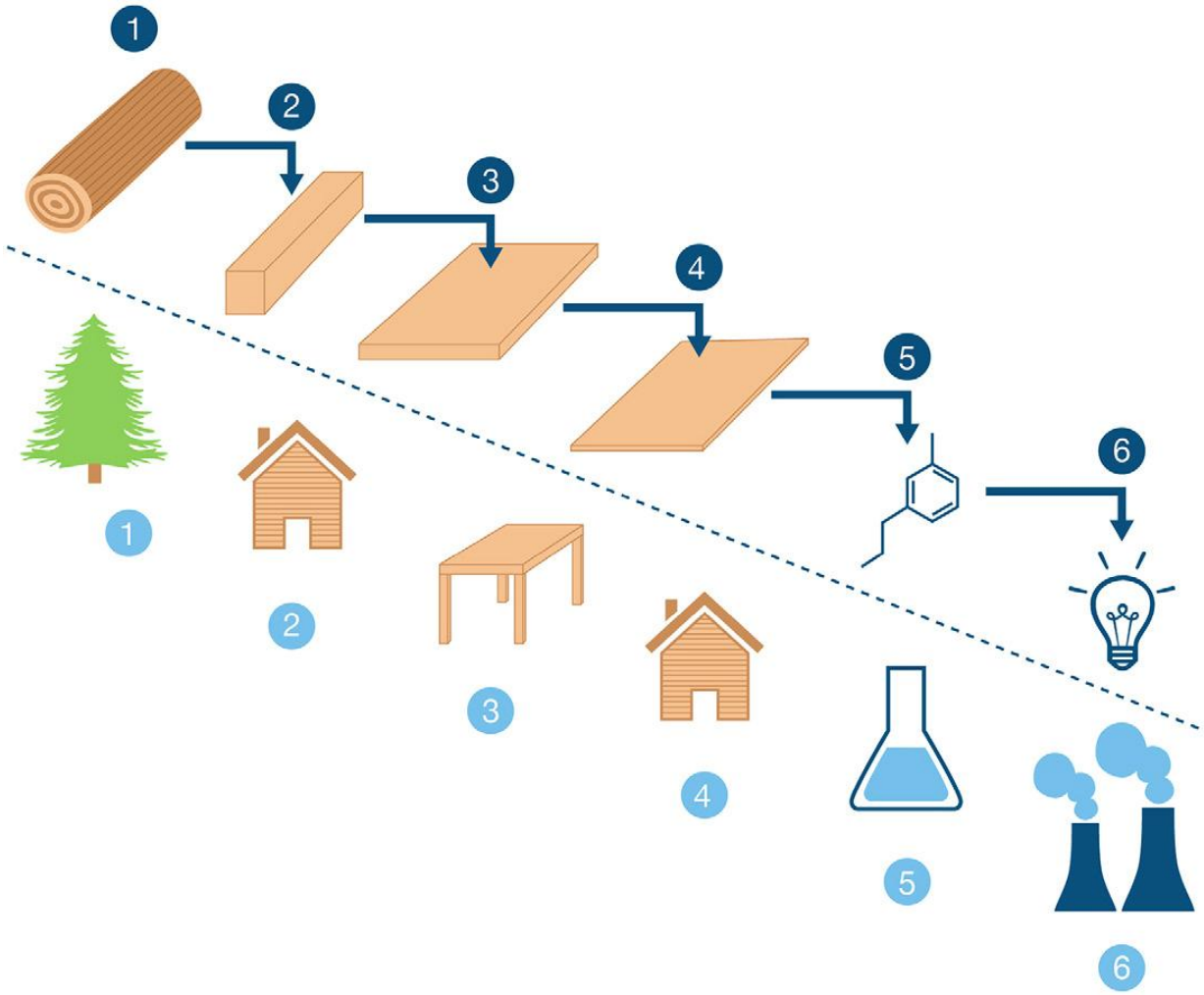
Forests

Old building stock

Municipal Waste

Forest-based value chain – circularity & cascade utilization





Sandberg et al., 2020

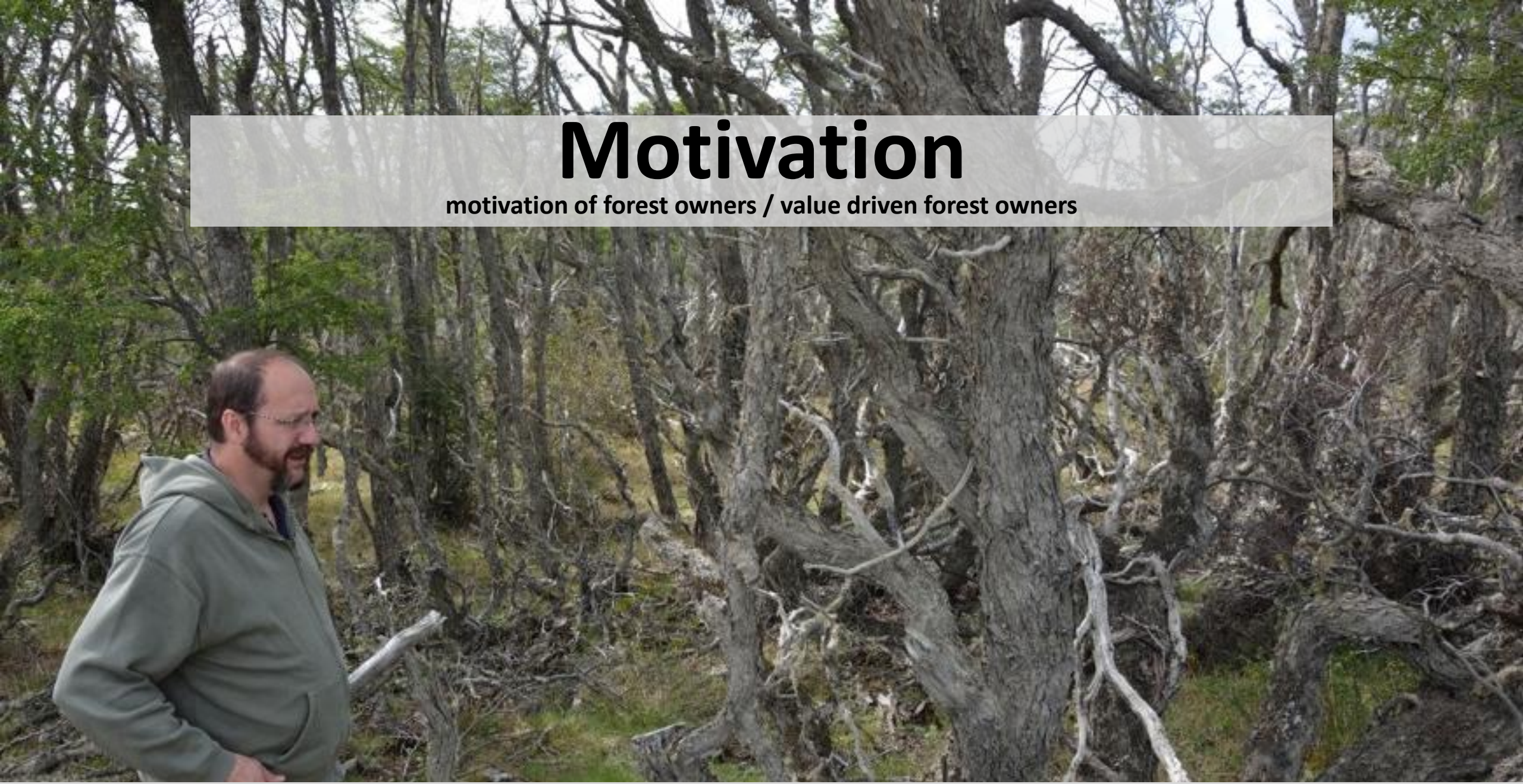
What is key to success?

resource supply meets growing demand

Co-operation

Motivation

motivation of forest owners / value driven forest owners



Nothofagus antarctica - Ñire (*Ushuaia*)

Understanding demand

Photo: Cyril Ruoso/J.H. Editorial

Reus ng materials from old building stock

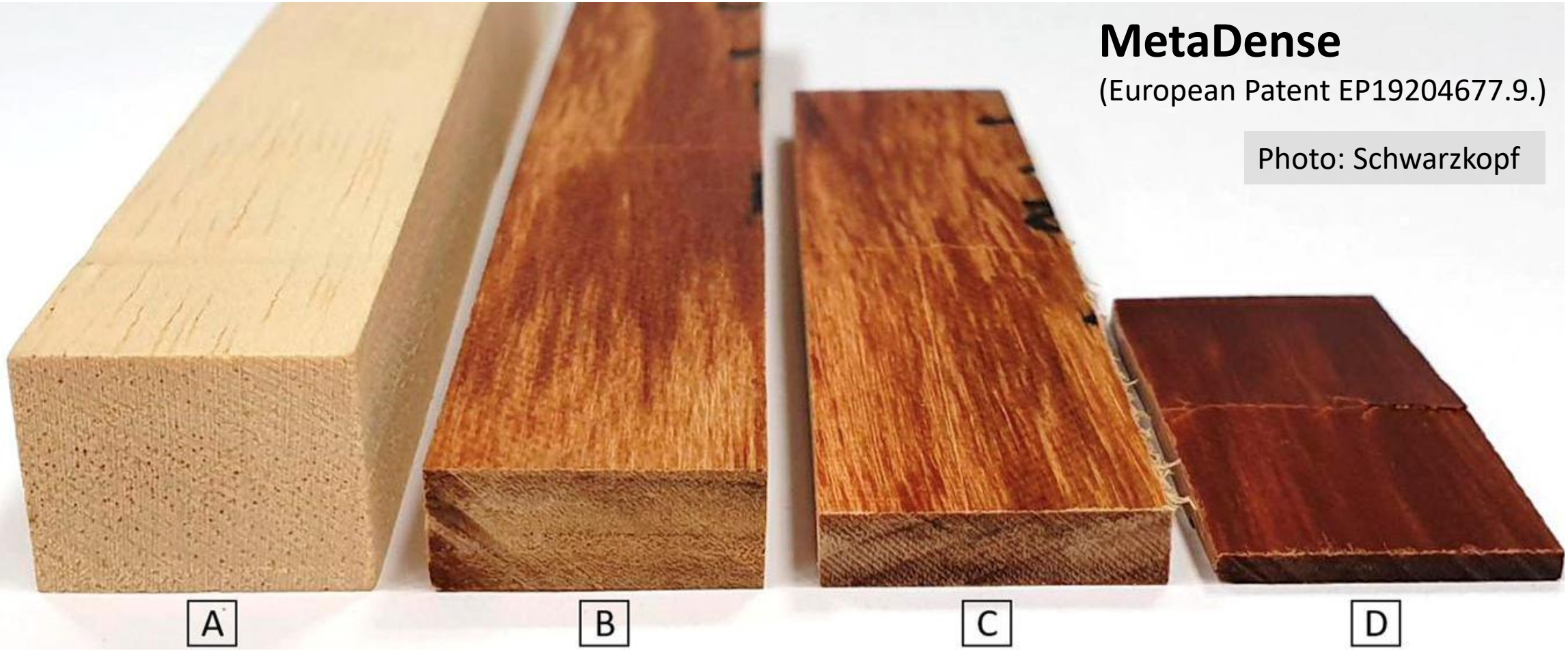
Photo: Derikvand

1. design for disassembly
2. reverse logistics systems
3. technological solutions

Planning for reusing materials at the beginning

Resource efficiency

Open innovation - Are adhesives resulting in a new function



Poplar specimens: (A) un-densified 15 mm thickness, (B) densified to 7 mm, (C) densified to 5 mm, and (D) densified to 2 mm.

Forest-based value chain transition to Industry 5.0?

Supporting Policies

Green Deal

Clean Industrial Deal

New European Bauhaus

Preserve craftsmanship

Violine maker, Ljubljana (from 1927)

Update Education

- Chemistry
- Physics
- Engineering
- Material Science
- Wood Preservation
- Manufacturing

- Sustainability
- Digitalization
- Interdisciplinarity
- Social science
- Creativity

New European Bauhaus Academy

Knowledge, Skills, and Innovation
for a resilient future of Europe

Work with creatives

0,005 m^3

(77 cm x 53 cm x 1,3 cm)

1 billion EUR

Thank you for your time!

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