UNITE
FOREST-HUMAN-MACHINE INTERPLAY

Advancing the economic and societal impact of science on forest data and decision support: Finnish Flagship Forest-Human-Machine Interplay

Finnish Society of Forest Science excursion to Latvia

Jaunkalsnava, 28.8.2025

Prof. Teppo Hujala, UNITE Impact Coordinator

Research Council of Finland
FLAGSHIP PROGRAMME
UNIVERSITY OF EASTERN FINLAND
Tampere University
NLS FINNISH GEOSPATIAL RESEARCH INSTITUTE FGI
Luke NATURAL RESOURCES INSTITUTE FINLAND

Research Council of Finland's Flagship Programme

The Finnish Flagships represent an effective mix of close cooperation with business and society, adaptability and a strong commitment from host organisations.

UNITE – Flagship for Forest-Human-Machine Interplay

The UNITE Flagship makes use of new technologies and produces agile methods for processing data based on forest data.

UNITE Forest-Human-Machine Interplay

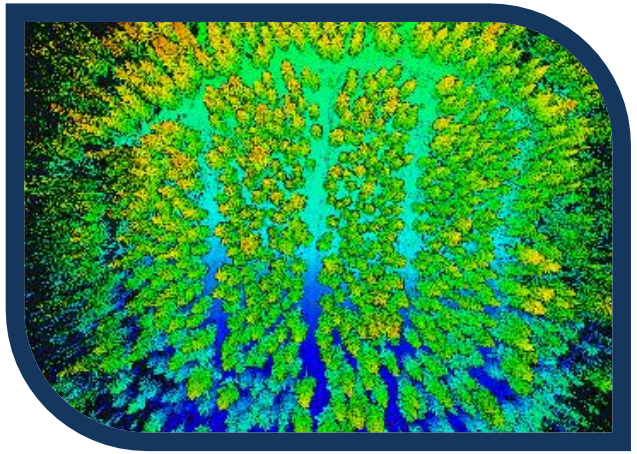
UNITE Goal

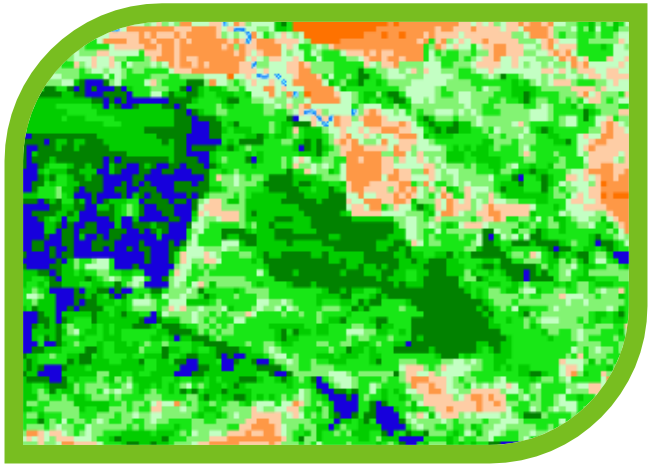
To build climate-smart, resource-efficient, multifunctional,
and humane biosociety.

To simultaneously enhance forest resilience,
sustainable provisioning of multiple ecosystem services for the society,
adaptation to and mitigation of climate change,
and meaningful living for us all and generations to come.

Top level research for society

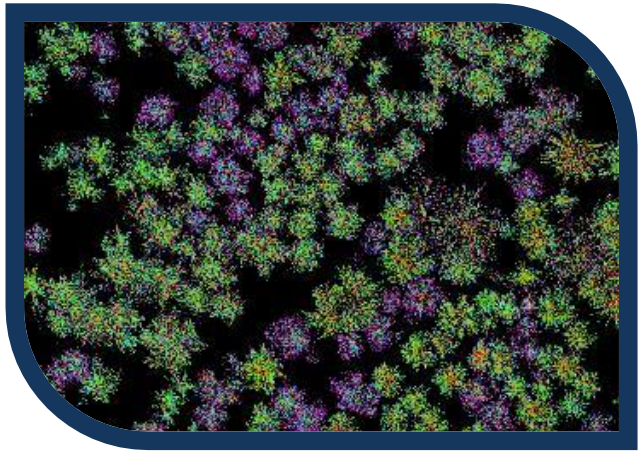
Theme 1
Disruptive technologies





Theme 2
Agile knowledge creation

Theme 4
Gameful forest interaction



Theme 3
Smart decision support

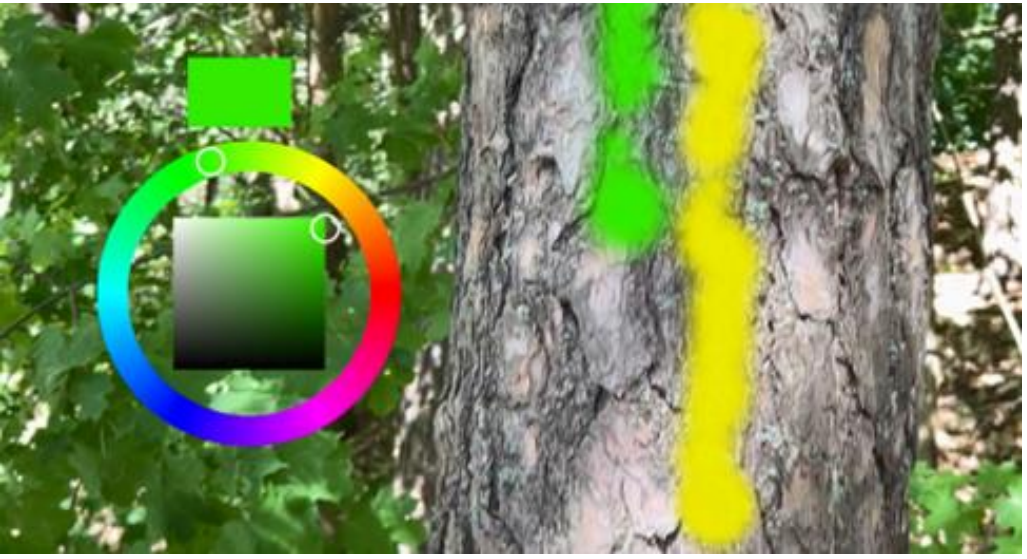
Top level research for society

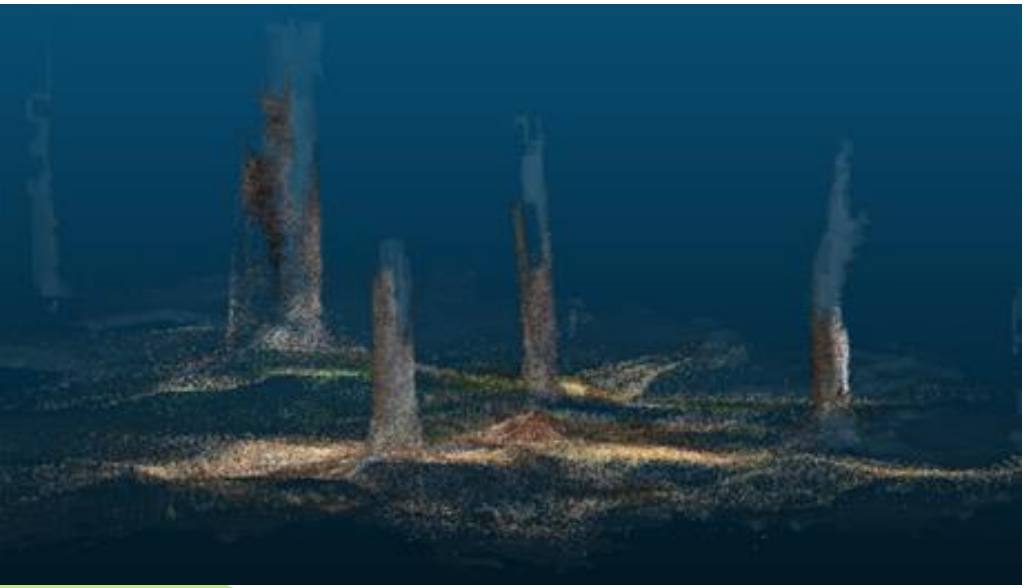
1. **Increase automation level** in forest measurements and harvester operations by using mobile laser scanning technologies.

2. **Develop** next generation **single-tree based forest information**.

3. Create **smart solutions and tools** addressing risks and uncertainties in **multi-functional forest management and use.**

4. Enhance the **possibilities of gameful technologies** to improve human wellbeing and enable better forest practices and experiences.

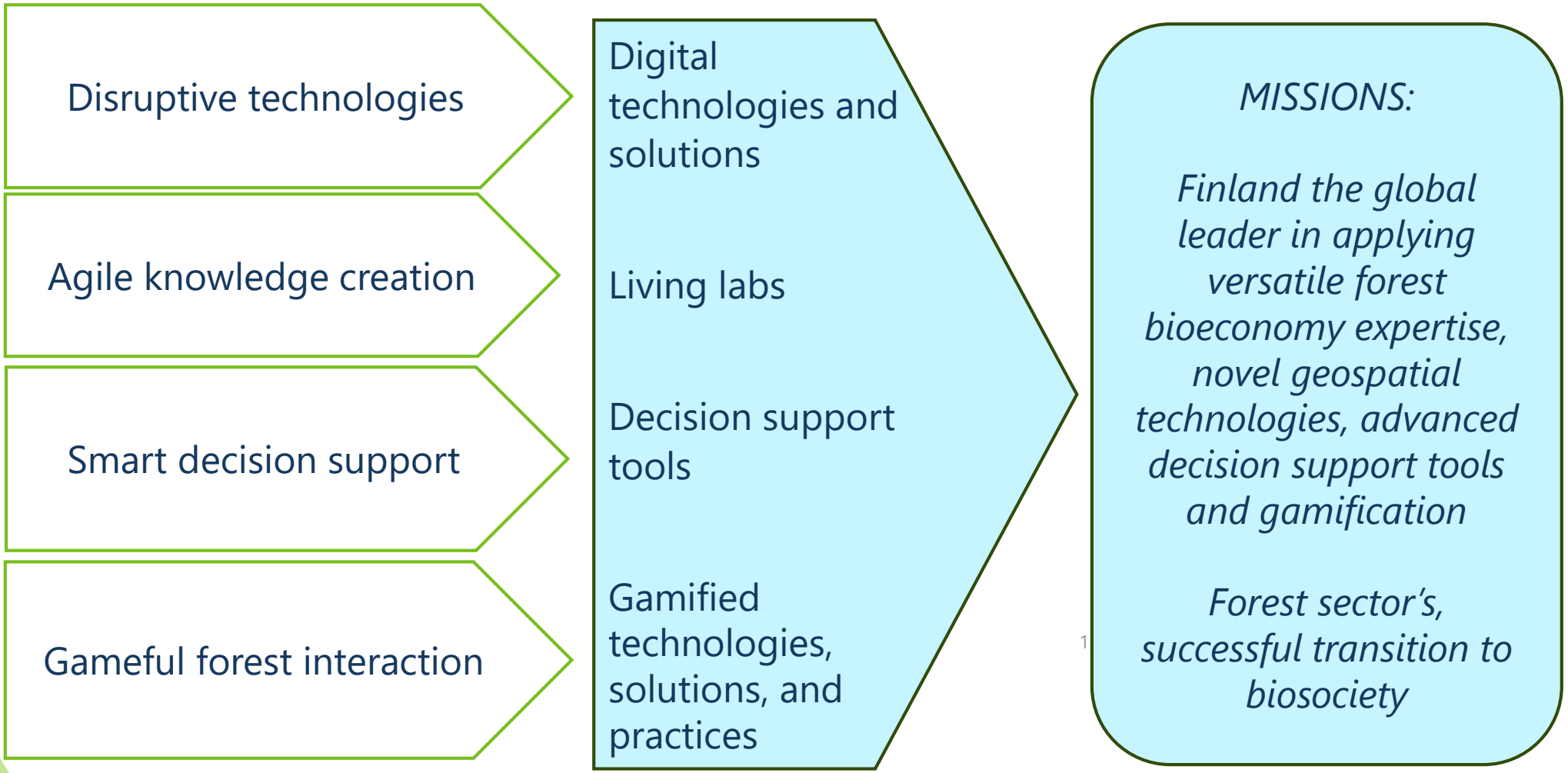




Societal, cultural, and industrial co-creation

1. Practice-validated digital technologies and solutions for multifunctional management and use of forests.
2. Living laboratories for co-development and demonstration.
3. Decision support tools addressing risks and uncertainties.
4. Gamified technologies, solutions, and practices for Human-Nature-Technology interplay.
5. Co-creation through case studies, tailored events and workshops, interactive seminars and webinars.

Societal, cultural, and industrial co-creation



UNITE Management Group (extended)

Prof. **Heli Peltola**
UNITE Director
UEF Team & WP5 Leader

Prof. **Juha Hyyppä**
UNITE Vice Director,
FGI Team & WP1 Leader

Prof. **Annika Kangas**
Luke Team & WP2 Leader

Ass. Prof. **Antti Kilpeläinen**
UEF, WP3 Leader

Prof. **Juho Hamari**
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Prof. **Teppo Hujala**
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UEF, Research Manager

Prof. **Matti Maltamo,**
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Prof. **Mikko Vastaranta**
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Luke Team & WP3 Vice Leader

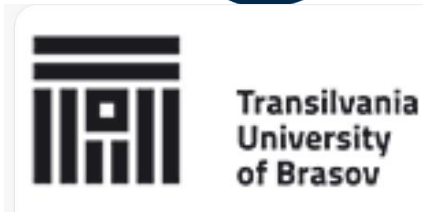
Prof. **Liisa Tyrväinen**
WP4 Vice Leader

Dr. **Timo Nummenmaa**
TAU Team Vice Leader,
Vice Impact Coordinator

UNITE | CURRENT INDUSTRIAL ECOSYSTEM

UNITE | CURRENT SCIENTIFIC ECOSYSTEM

Forestry and Forest Products Research Institute



UNIVERSITY OF
COPENHAGEN

Long-term EU-AU Research
and Innovation Partnership
for Food and Nutrition Security
and Sustainable Agriculture

The Power of Play: Digital Technologies Transforming Forest Planning

Philip Chambers[1], Teppo Hujala[1], Mari Selkimäki[1], Isabella Hallberg-Sramek[2], Karin Öhman[2] | [1]University of Eastern Finland, [2]Swedish University of Agricultural Sciences | European Bioeconomy Scientific Forum 2025

PLAYFAIR Forest Network

The Challenge & Vision

🌲 Forest Bioeconomy + 📱 Digitalisation + 🙋 Communities

🌍 **The Challenge:** Sustainable bioeconomy requires social inclusivity & transparency

🎮 **Innovation:** Playful digital technologies transforming stakeholder engagement

🤝 **Vision:** Democratic forest planning supporting bioeconomy transition

Exploring how playful technologies can democratise bioeconomy decision-making

Network Research Focus

🔬 Interdisciplinary Research Network

PPGIS
Public Participation GIS

VGI
Volunteered Geographic Info

LBGs
Location-Based Games

Gamification
Digital Engagement

Assessing current trends & developing methods for inclusive forest planning

Addressing Critical Research Gaps

📊 Forest Bioeconomy Research Landscape

Social Inclusion: Limited knowledge of public perceptions in forest bioeconomy

Stakeholder Engagement: Need for participatory approaches in forest planning

Democratic Governance: Gaps in inclusive decision-making processes

Regional Variations: Understanding cross-cultural forest management differences

Our network tackles identified gaps in forest bioeconomy social dimensions

Scan me!

9 European countries

6 Webinars

2 In-person meetings

Contact: Philip Chambers
University of Eastern Finland
sites.uef.fi/playfairforest/

Join Our Network!

2025 Activities: Online meetings • Stakeholder workshops • Knowledge exchange
Participate: Share expertise, test methods, collaborate on research
Outcomes: Publications, policy brief, research agenda for post-2025

UEF · SLU · NMBU · SILAVA · Fondazione Bruno Kessler · SNS Nordic Forest Research · FOR BIO ECONOMY an EFI research network

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Thank you!

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