

Forum Wood Building Nordic 2019 | Helsinki | 27 September 2019

“Climate-KIC - Wood Construction in Climate Change Mitigation”

Dr. Chiara Piccardo

Co-authors:

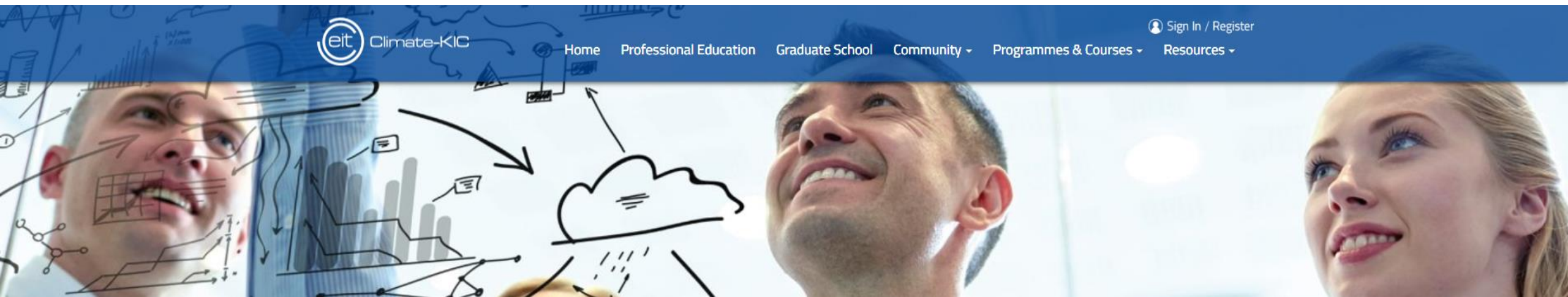
Prof. Mark Hughes, Dr. Yutaka Goto, Prof. Deniz Koca, Dr. Pasi Aalto



Catapult Summer School

“a thematic research group that participate in a two-week residential programme to co-create and develop skills”.

The Catapult programme is supported by the European Institute of Innovation & Technology (EIT), as an initiative of Climate-KIC community.



Partners

Coordination and teaching

- Aalto University, Wood Material Technology group
- Chalmers University of Technology, Sustainable Building group

Teaching

- Norwegian University of Science and Technology, NTNU Wood
- Lund University, Centre for Environmental and Climate Research

Synergies

...with research projects:

- GoWood!, EIT Climate-KIC Innovation Pathfinder project
- STAR-ProBio, H2020 Research and Innovation Action (RIA) project

...with educational projects:

- BIOECONOMY Graduate Research School (GRS), Lund University

The Partners' experience was capitalized in the summer school activities.

Stakeholders

In the 1st week:

- UPM
- Stora Enso



In the 2nd week:

- SWECO
- Riksbyggen



PhD Students

20 selected PhD students:

- with 19 different nationalities!
- from 17 different universities!
- with different backgrounds in:
 - Architecture and Civil Engineering
 - Forestry
 - Biotechnology
 - Geography
 - Environmental Management
 - Public Health
- 50/50 gender balance



Why wood construction & climate change?

The building sector is responsible for:



1.

half of all extracted
materials



2.

36% of CO₂ emissions
from energy and
material production



3.

40% of energy
consumption

Why wood construction & climate change?

Increasing wood use in buildings can contribute to:



1.

Substitution of energy-intensive materials



2.

Carbon storage effect of wood products




3.


Energy-efficiency and **health** benefits from the material

Why wood construction & climate change?

Great potential to improve the sustainability of the built environment by increasing the total amount of wood used in construction!



Various mechanisms and incentives
required to increase the proportion of
wood used in construction



But in the longer term, might we face
supply shortages if we wish to preserve
the role of forests in climate change
mitigation and the provision of other
ecosystem services?

So...

Why a summer school on wood construction & climate change?

- Urgent need **to improve the scientific knowledge** on the role of wood construction in climate change mitigation.
- Urgent need **to join research interests** to investigate the relationship between forest resources and wood use.
- Urgent need **to develop a system thinking approach** among different scientific disciplines to deal with complex problems.
- **To promote an holistic view** of sustainable development.

Programme

When and where:

- from 26th August to 6th September, 2 weeks
- Aalto University campus + Chalmers University of Technology campus



LOW CO₂ EMISSIONS FOR TRANSPORT



Learning goals

EIT Climate-KIC summer school concept:

- To equip participants with the knowledge of socio-technical innovation
- To exchange ideas between students and experts.

Our specific goals:

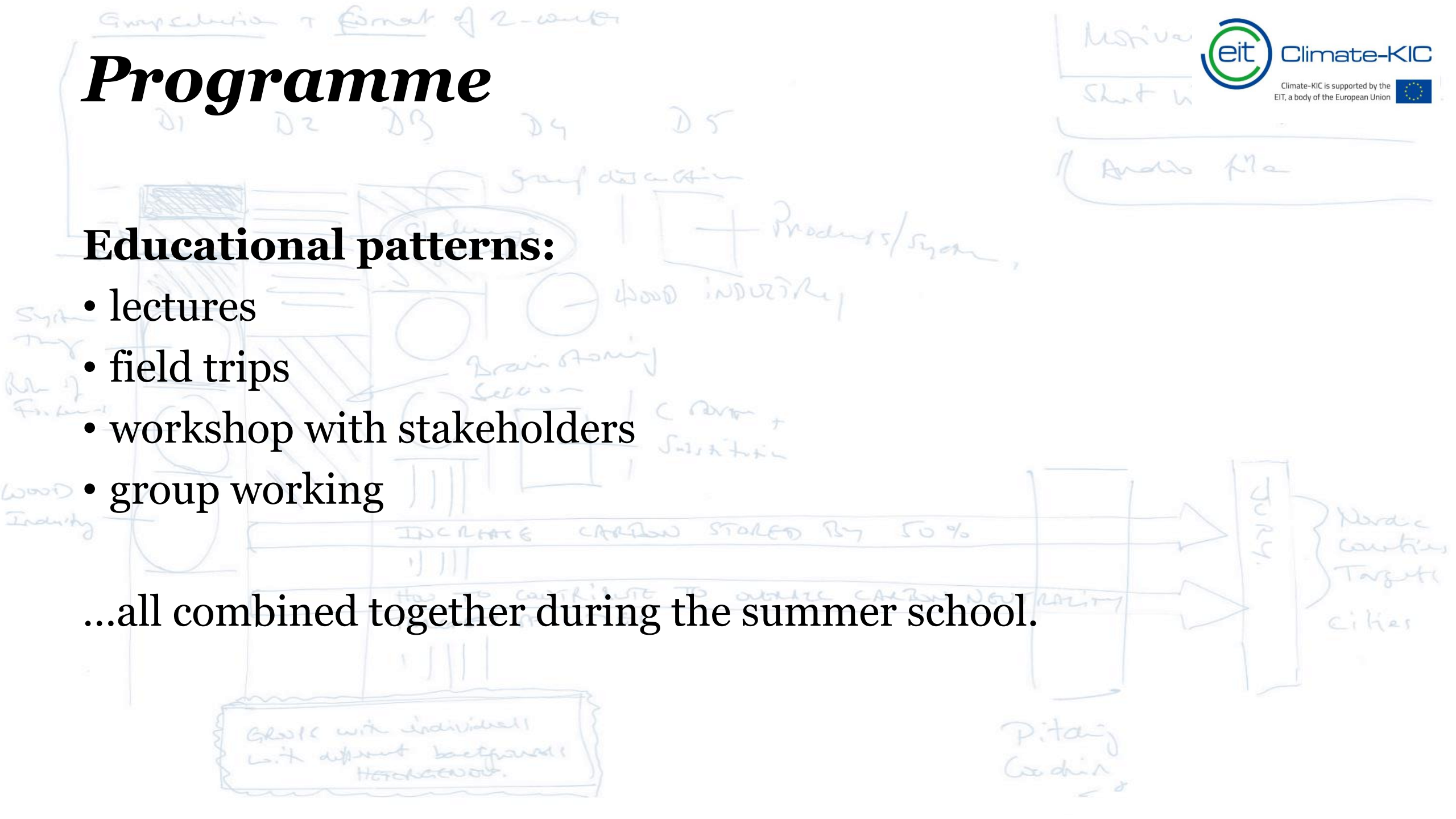
- To combine theory with practice in the field of wood use in construction and bioeconomy.
- To develop innovation strategies for stakeholder cooperation.
- To meet, discuss and question key business leaders and policy-makers.

Programme

Educational patterns:

- lectures
- field trips
- workshop with stakeholders
- group working

...all combined together during the summer school.

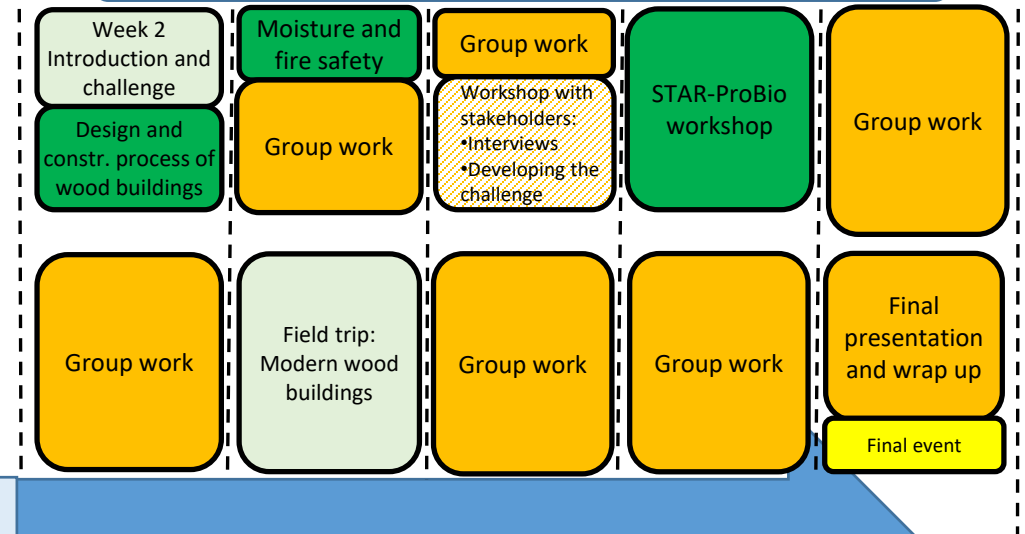
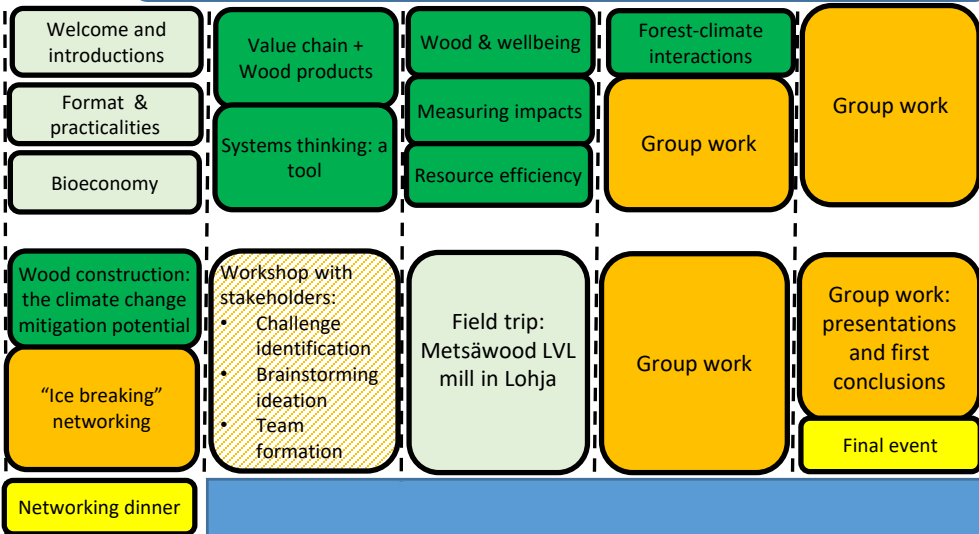


Week 1: Aalto University

Week 2: Chalmers University of Technology

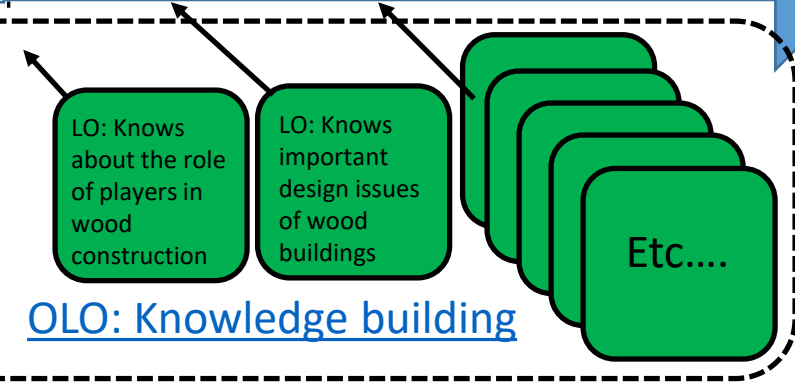
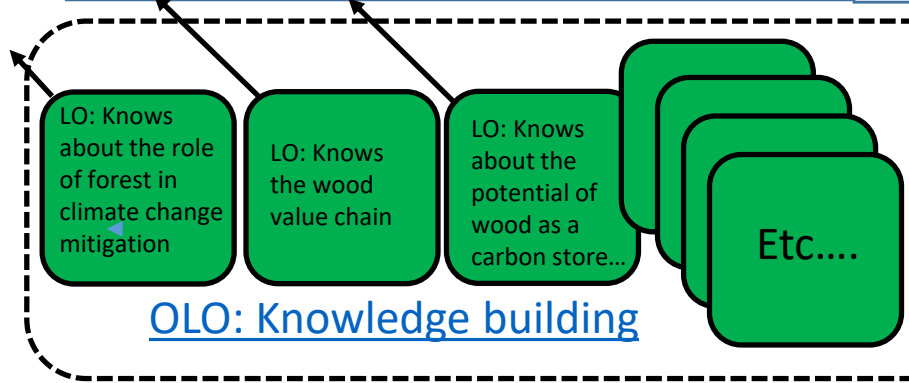
Knowledge focus: forest resource, material, value chain

Knowledge focus: building systems, construction, LCA



Travel between locations

1-2 days introduction and knowledge building to prepare for challenge



Pitching event

OLO: Transdisciplinary learning

OLO: Systemic solutions development

Learning outcomes

1. Knowledge building

(e.g. students understand the role of forests in climate change mitigation, the wood value chain, wood building system etc.)

2. Systemic solutions development

(e.g. students develop the ability to create tangible solutions)

3. Transdisciplinary learning

(e.g. students learn to work in a transdisciplinary context applying a holistic “systems thinking” approach to problems)

Challenges to stimulate both systems thinking and transdisciplinary work.

Challenges, learning outcomes

The challenges are a key mechanism to support the learning outcomes of:

- **works in transdisciplinary context**
- **creates tangible solutions**

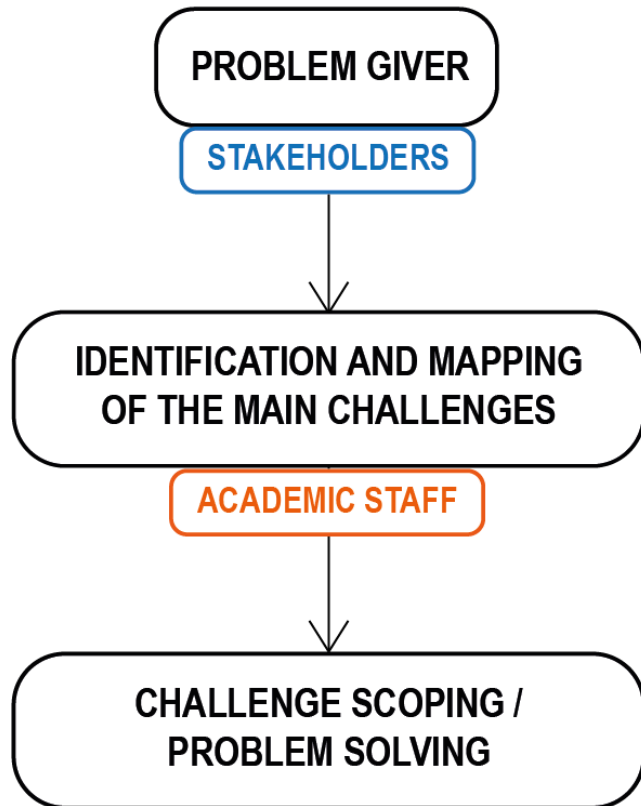
The challenges are:

- supported by “**knowledge building**”
- facilitated by coaches and researchers
...but also **stakeholders** are important

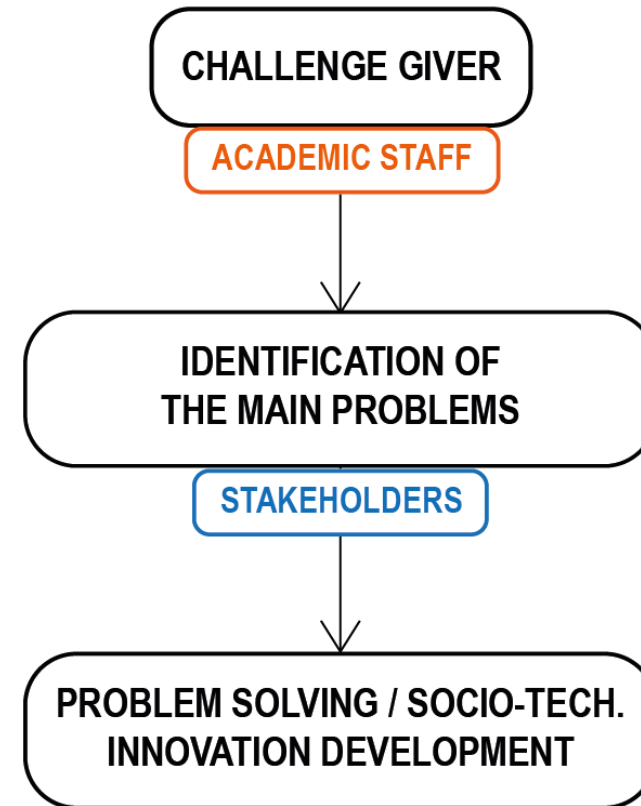


Role of the stakeholders

During the 1st week:



During the 2nd week:



Knowledge building

Knowledge talks provide key background information.

In the 1st week:

- Understands the role of forests in Climate Change mitigation emerging bioeconomy, and provision of ecosystems services
- Understands the value of forests
- Understands the wood value chain and its products

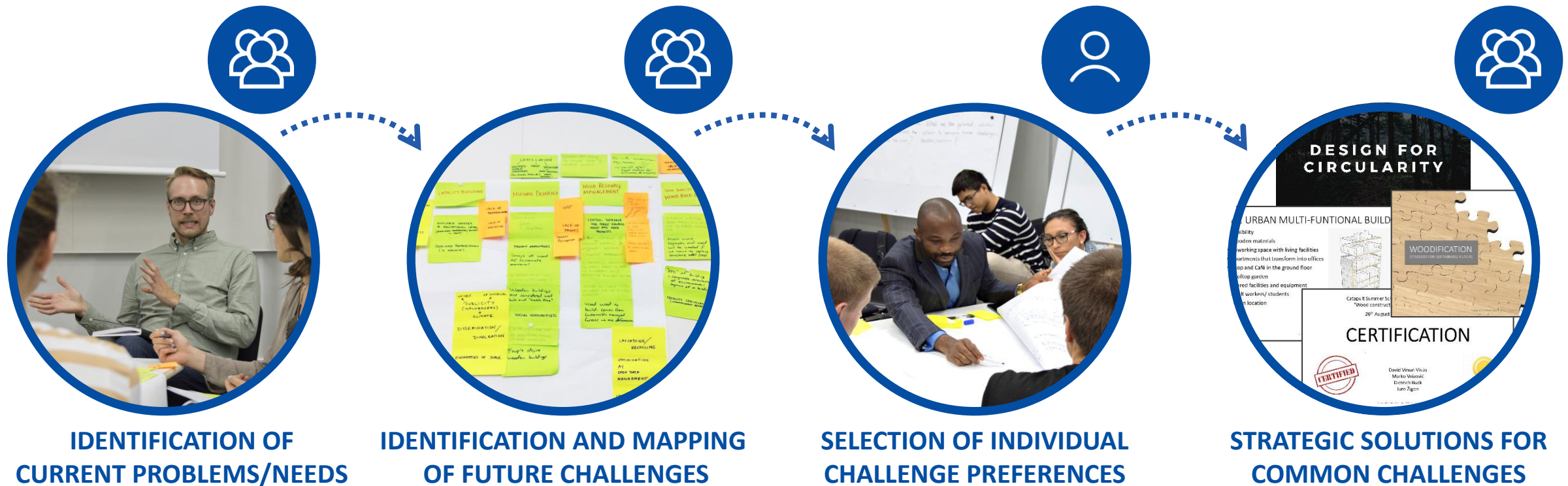
In the 2nd week:

- Knows about current wood building systems
- Understand the role of the stakeholders in wood construction
- Understands the role of wood products in design for adaptation

Systemic solutions development

Through a **systems thinking approach**, students identified challenges and develop innovation strategies.

1st week exercise:



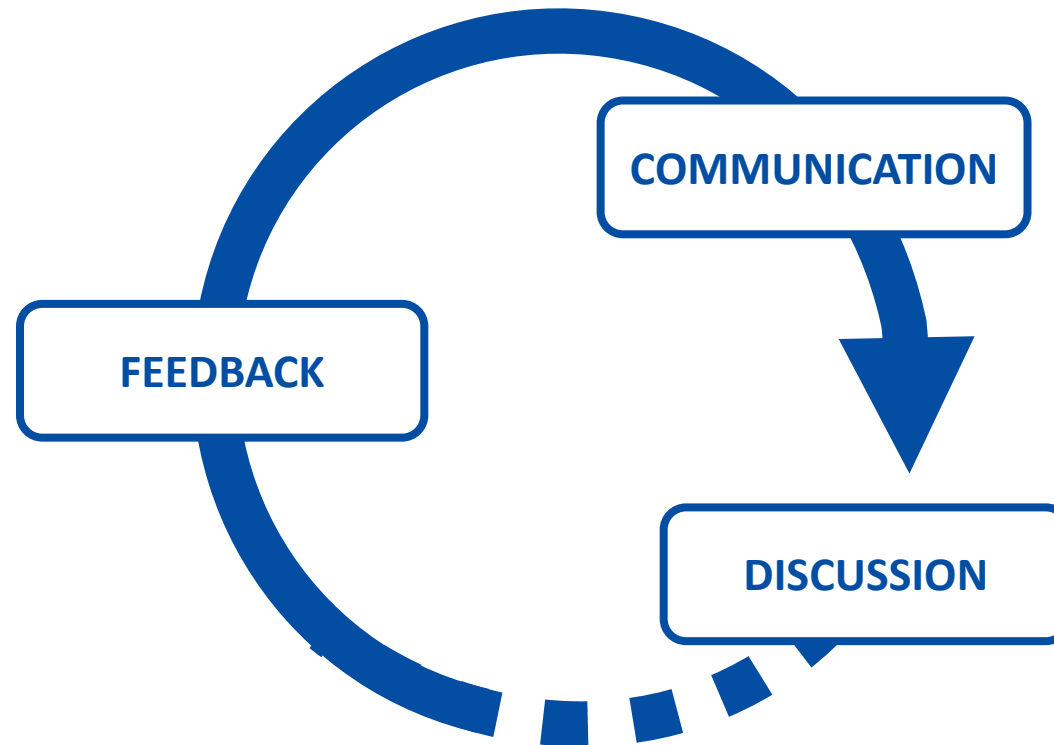
Transdisciplinary learning

In a **transdisciplinary context**, group of students come up with solutions. **This can't be done in isolation!**



DYNAMIC process!

The process adopted in the summer school was **circular** and **dynamic**.



Conclusion

- There is a need to promote a transdisciplinary approach among the PhD students, especially in climate change research.
- The role of stakeholder is important to bring real-life case studies.
- Good opportunity for networking among the PhD students and hopefully the network will last and develop future collaborations.
- It would be a good idea to make it a Nordic program.

People

Aalto University:

- Prof. Mark Hughes
- Dr. Chiara Piccardo
- PhD Deepika Dahiya

Chalmers University of Technology:

- Prof. Yutaka Goto

Lund University:

- Prof. Deniz Koca

NTNU:

- Prof. Pasi Aalto

Climate-KIC coaches:

- Barbara Földi
- Katrin Ungher



Prof. Mark Hughes



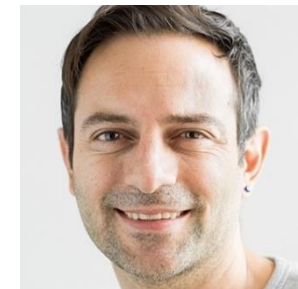
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Phd Dahiya Deepika



Prof. Yutaka Goto



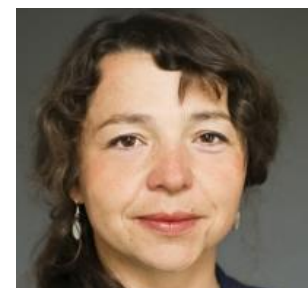
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Thank you!

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