



Strategic Innovation and Research Agenda SIRA

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Brussels, Bedford Hotel

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Designing Trees for the Future

Why do we need a Trees4Future SIRA?

- The innovation and research activities within T4F need special attention on its content by political decision makers
- It will help to improve efficiency between existing platforms and networks, and the science-based response to the grand societal challenges in a long time horizon, such as
 - Reinforcing Europe's competitiveness (supporting the Lisbon Agenda)
 - Re-industrialisation policies – supporting the rural developments
 - Tackling **climate change**
 - Improving sustainable **production methods**
 - Optimising the sustainable knowledge-based **use of forest resources** by industry and society

T4F SIRA for whom ?

In general:

- Public sector, Political decision makers
- Private sector, Industry, services, SMEs, forest owners
- Society at large

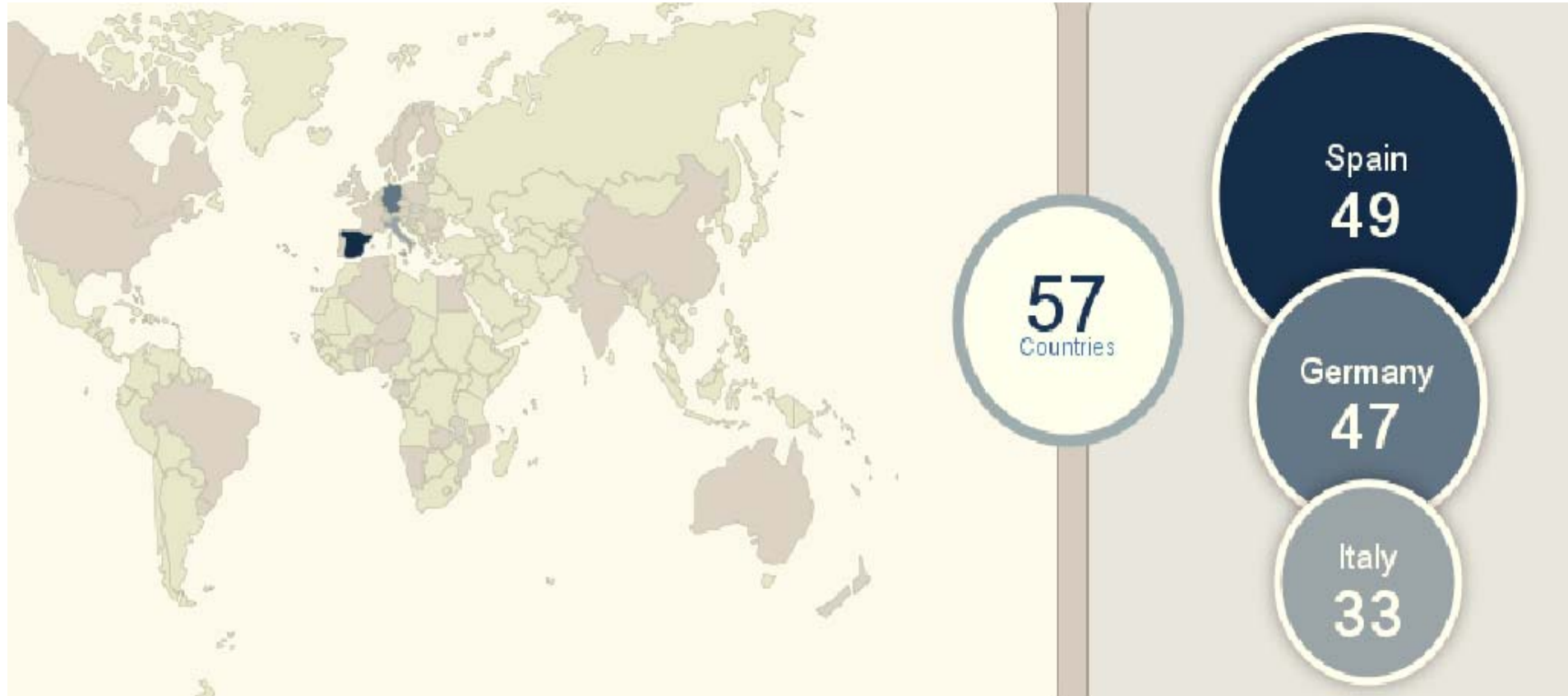
Special attention is given to:

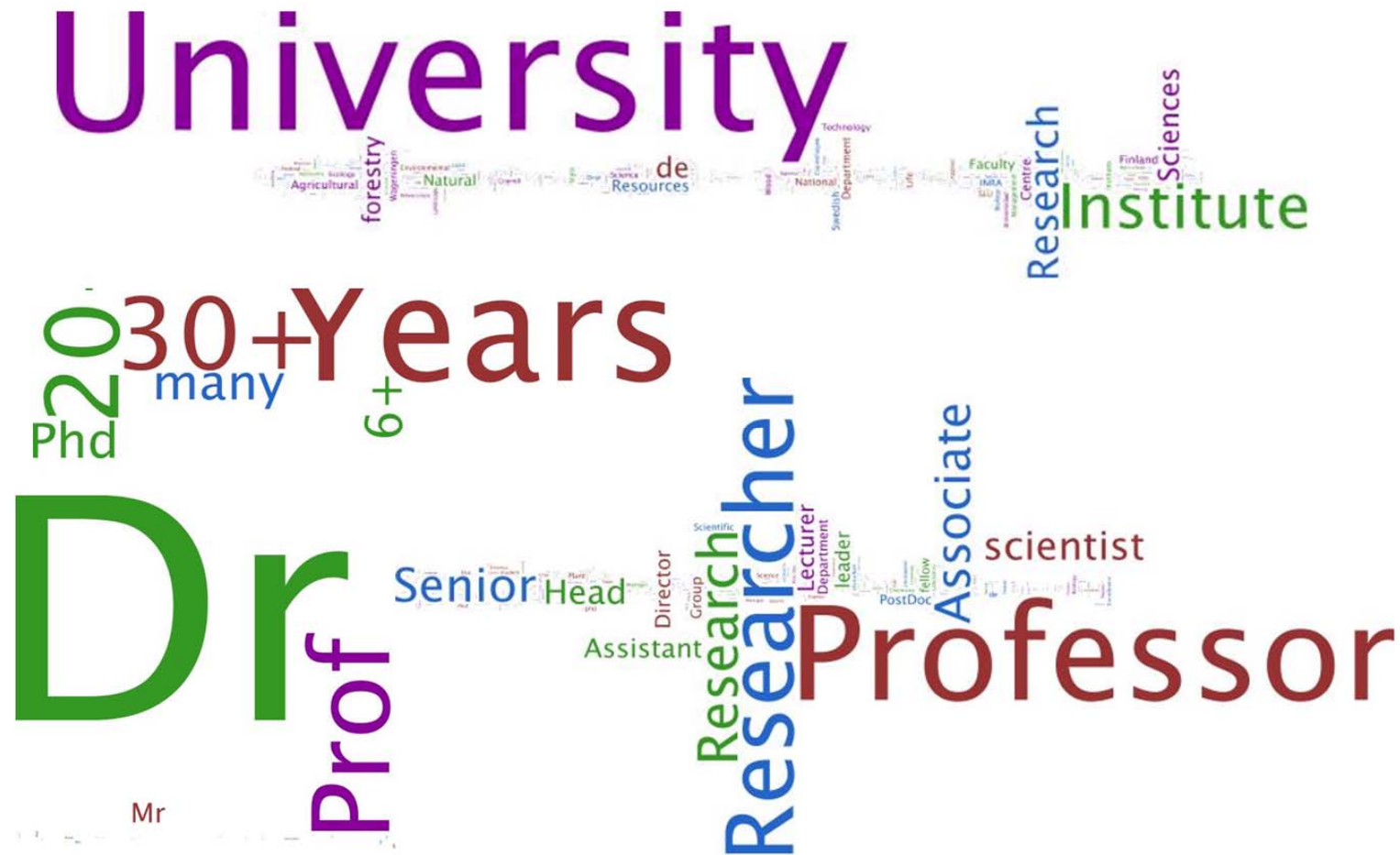
- Tree breeders, forestry value chain(s)
- European / International research community disciplines:
 - Forest biology (genetics, physiology, pathology, etc) + tree breeding
 - Forest ecology and management
 - Wood science
 - Wood technology

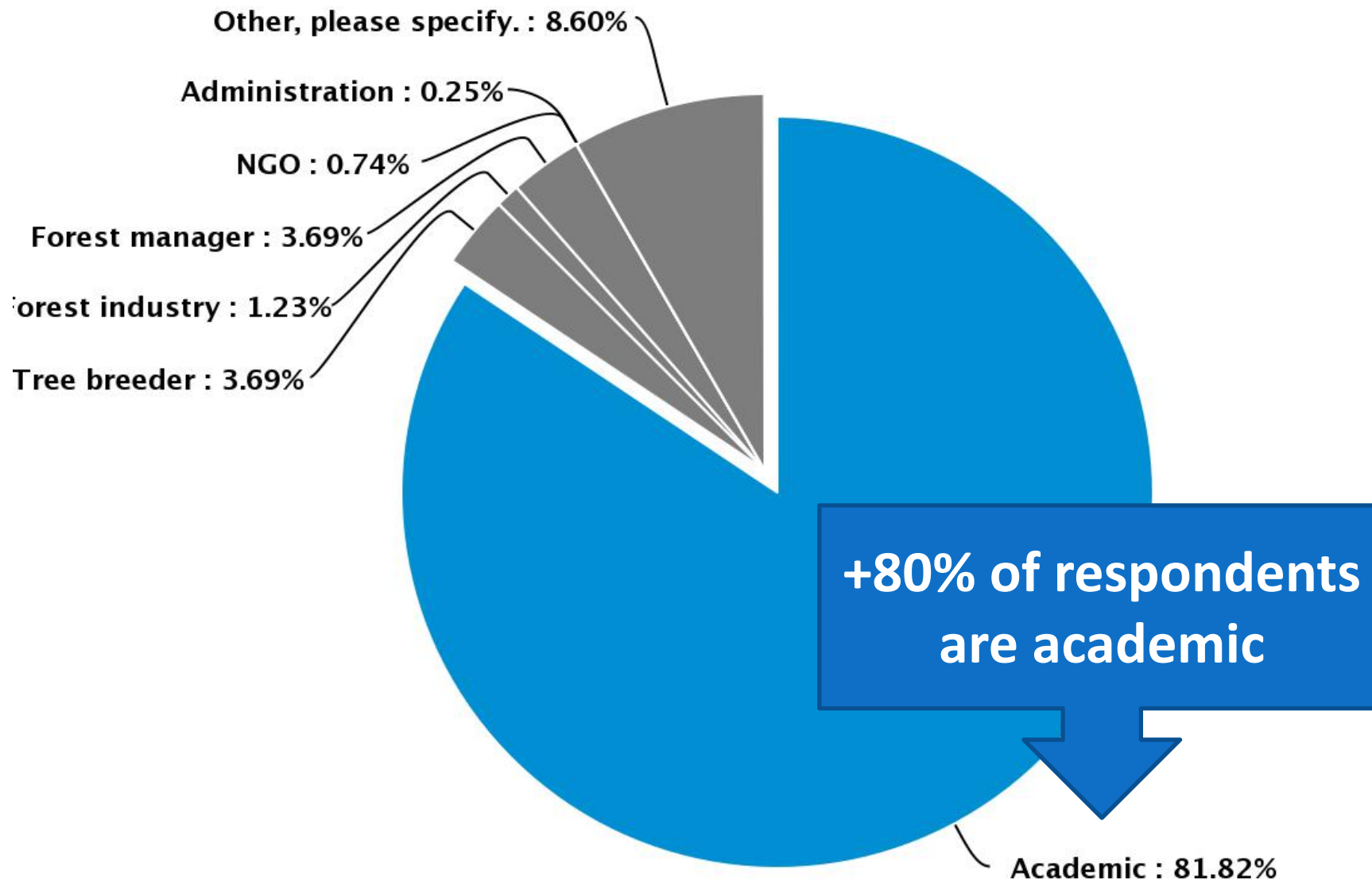
- A Web-based Survey was launched among the research community
- Interviews with stakeholders were carried out (dr. Marzano)
- A SIRA Workshop with selected key experts was organised
- Today's panel discussion!

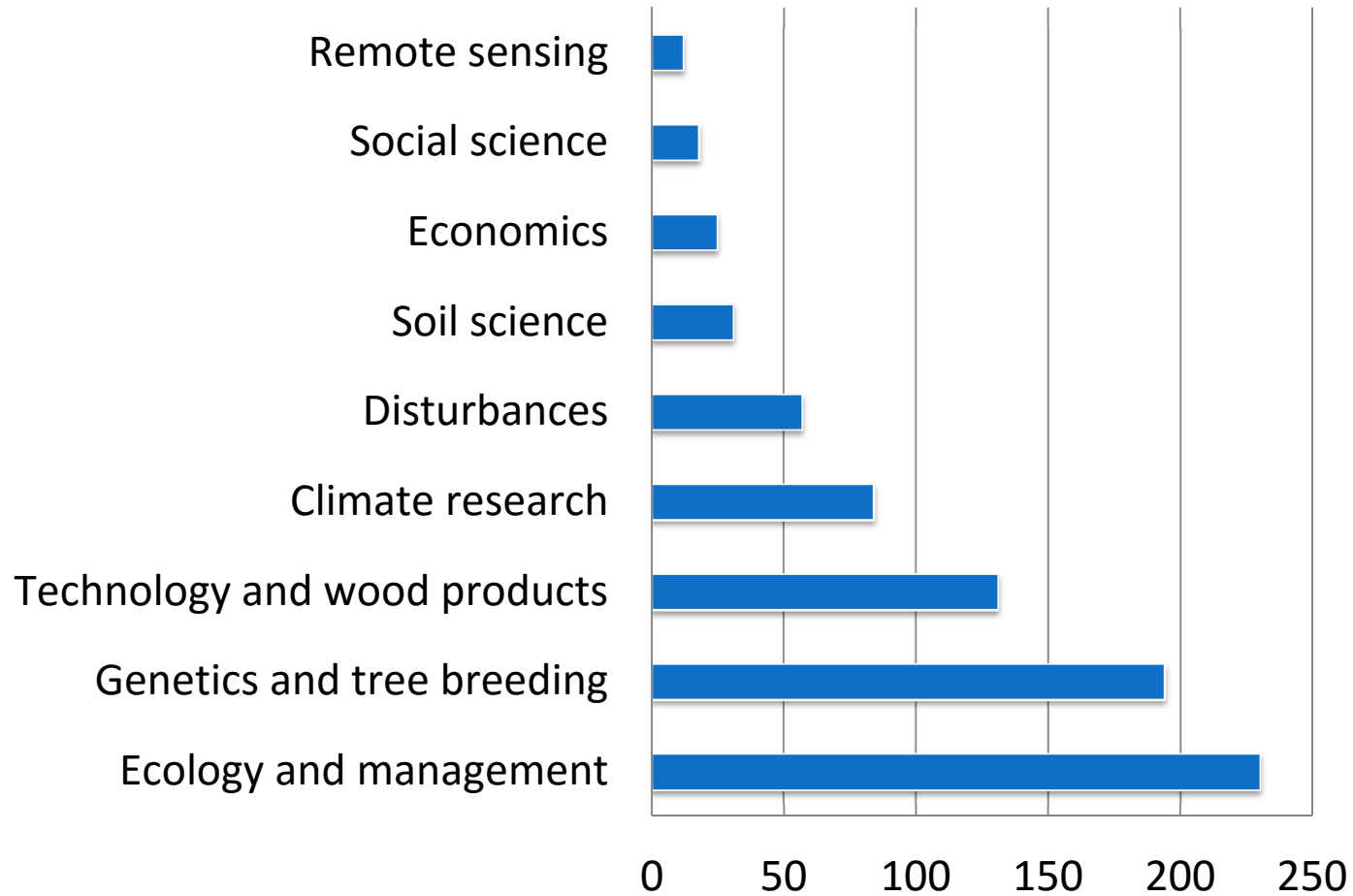


Online survey received 480 inputs in June 2015









FOUR QUESTIONS WERE TAILOR-MADE:

1. WHAT ARE YOUR **KEY PRIORITIES** IN RESEARCH AND INFRASTRUCTURE DEVELOPMENT?
2. WHICH KIND OF **ACHIEVEMENTS** DO YOU EXPECT IN 10 YEARS' TIME?
3. WHAT KIND OF **RESEARCH INFRASTRUCTURE** IS NEEDED FOR ACHIEVING THESE GOALS?
4. WHICH ARE YOUR **CURRENT OBSTACLES OR PROBLEMS** FOR REACHING YOUR OBJECTIVES?

SIRA EXPERT WORKSHOP

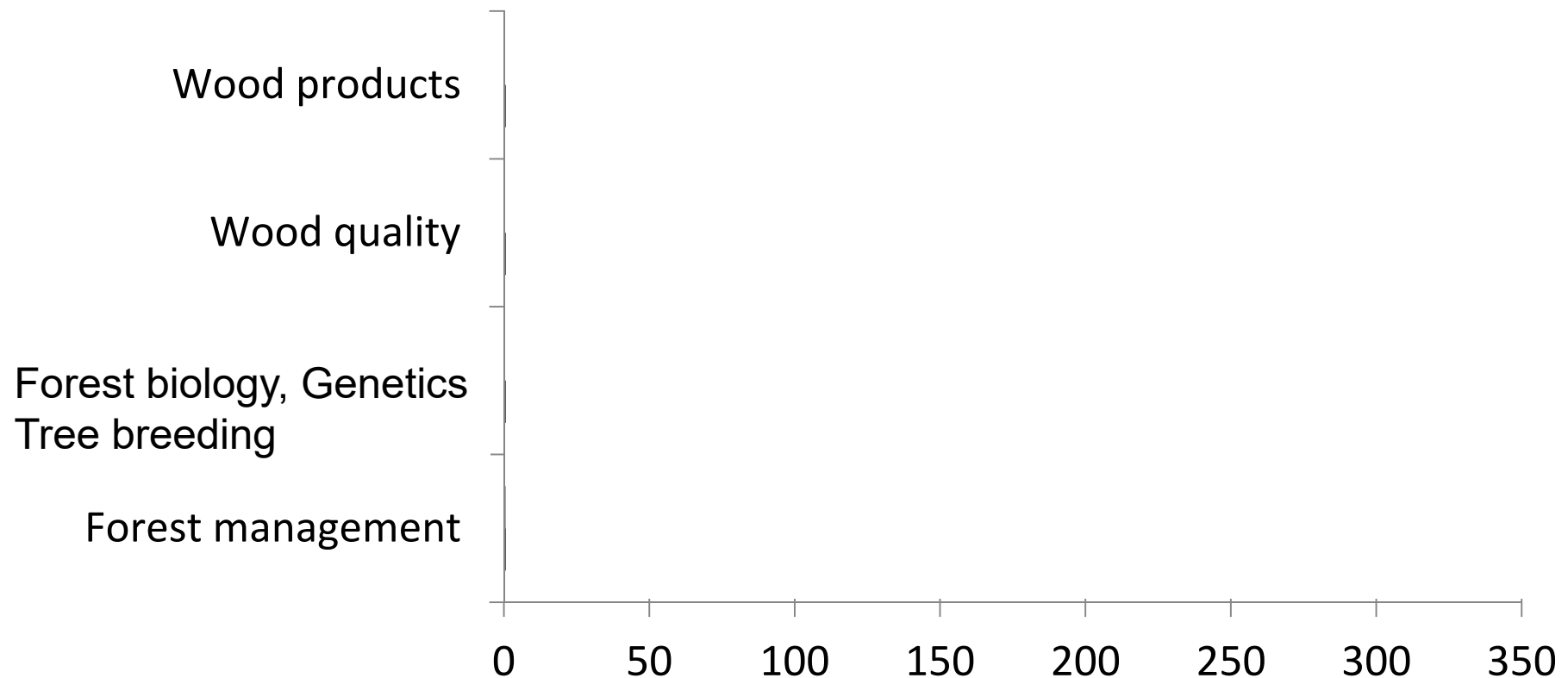
Globalisation the + and – (EUROPEAN / GLOBAL STATE OF THE ART)

| - | + |
|---|---|
| <ul style="list-style-type: none"> • Resource exploitation (human, natural...) • Unsustainable consumption • Overproduction (cheap / mass) • Loss of diversity in products • Power of multinationals | <ul style="list-style-type: none"> • Customisation / personalisation • Knowledge sharing • Benefit of multicultural backgrounds • Opening of new markets • Fast development technologies |

WHAT SCENARIO FOR 2026 ?

- Innovation / Migration
- New Infrastructures
- Human resources “sharing” as a value added infrastructure
- Central knowledge platform (including all stakeholders)
- New media
- Travelling / movement of people and ideas

1. KEY RESEARCH PRIORITIES



NB! Most respondents identified more than one priority..

(GENETICS, PHYSIOLOGY, PATHOLOGY, ...)

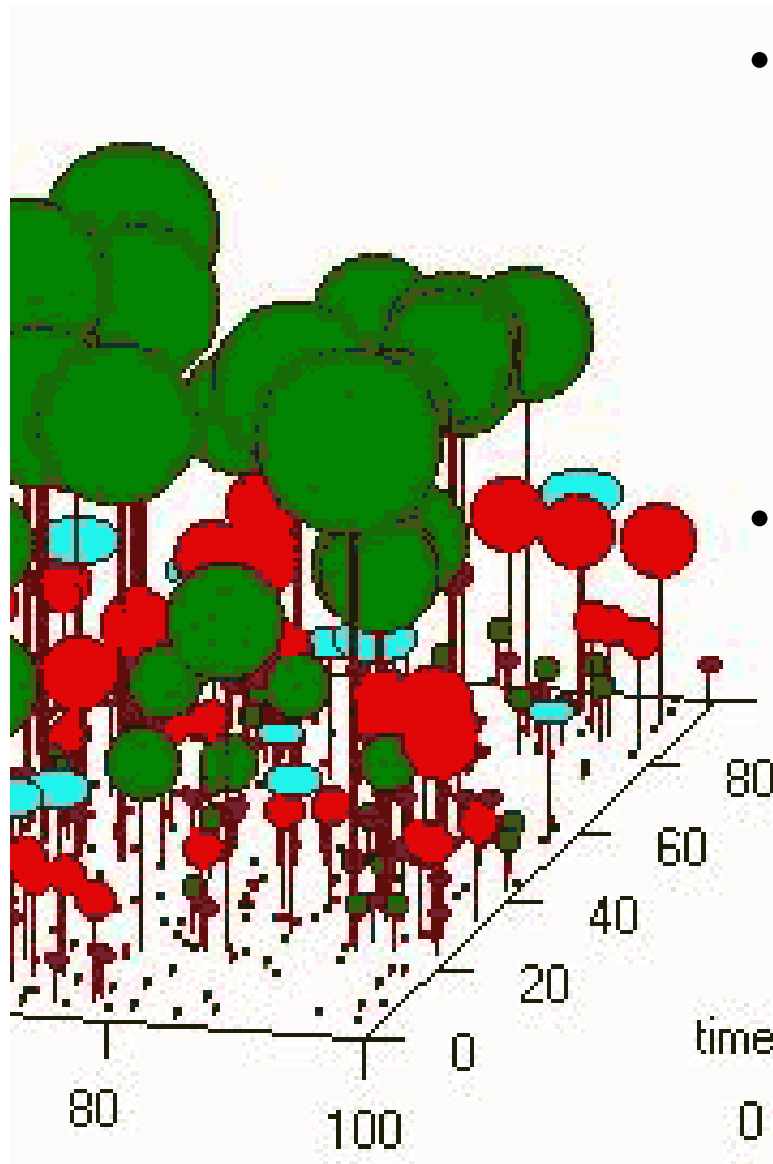


- Combine genetics and tree physiology with ecological methods, resource models, analysis of wood quality and other methods to gain a **full picture of climate change impacts** on forest ecosystems and to develop **SFM adaptation strategies**
- Determine where forest management and tree breeding research can make the **biggest impact**.
- Bio-economy: Effect of increased biomass utilization on site nutrient balance and **site fertility**

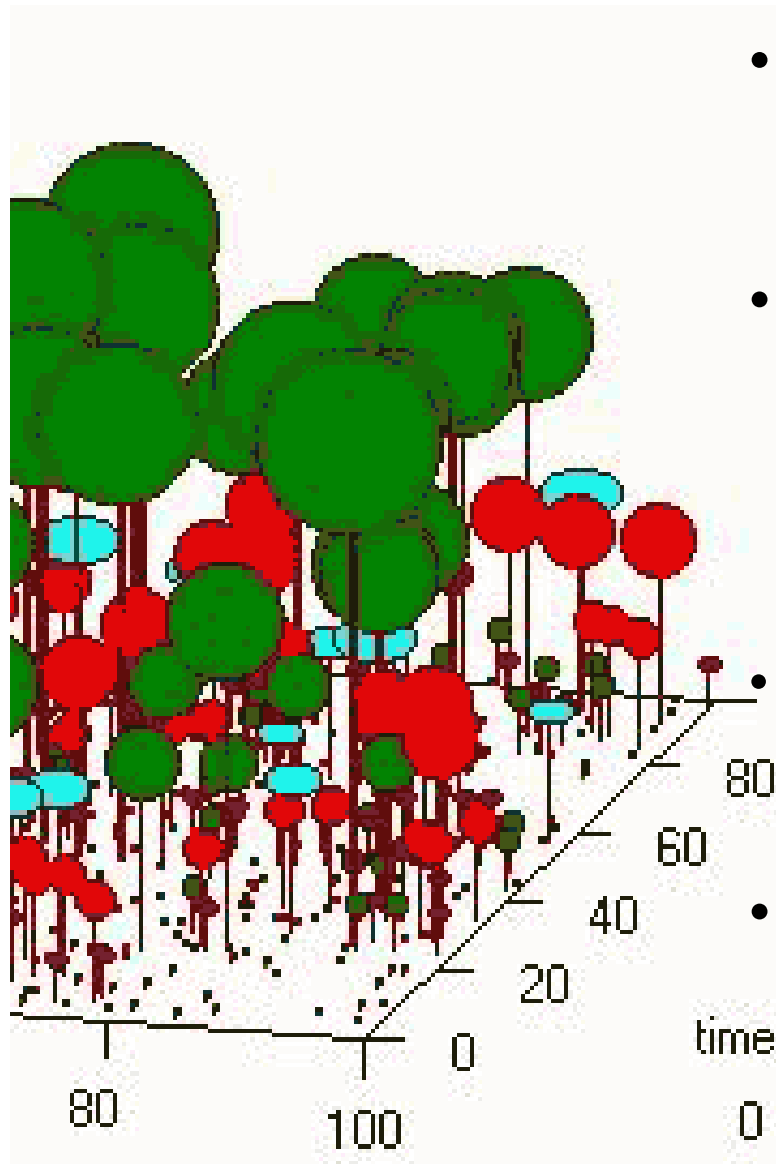
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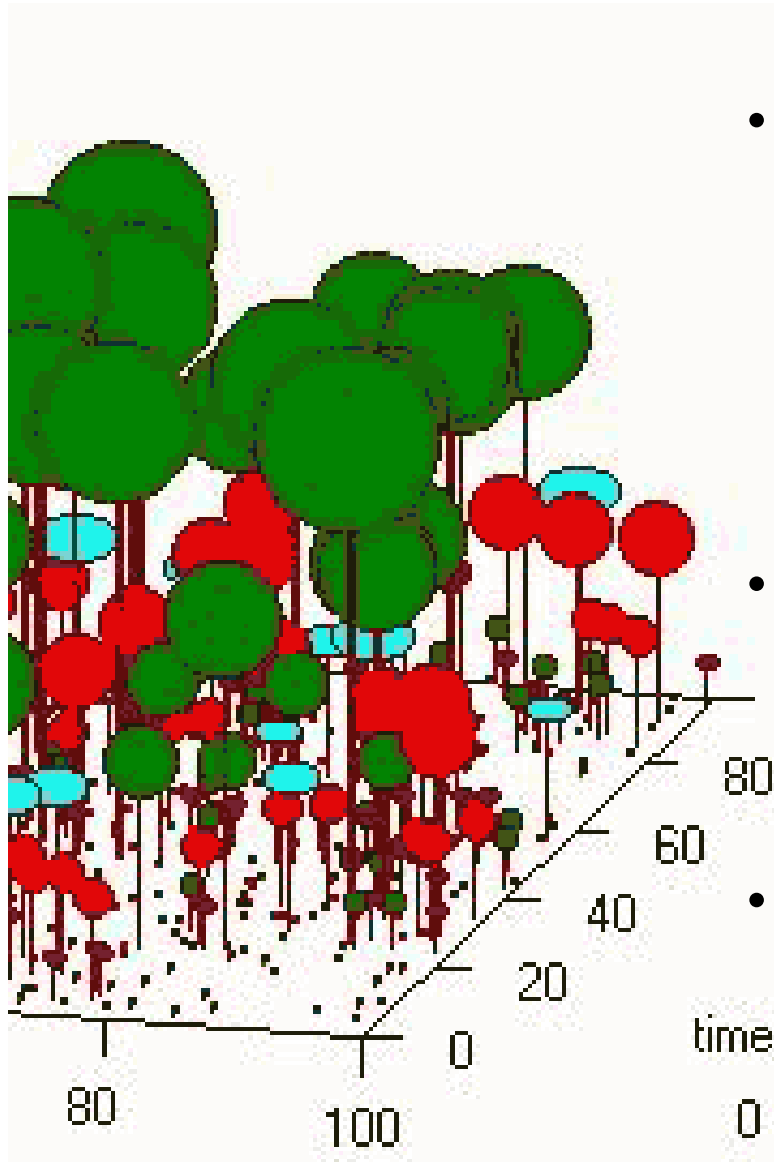
- **Evidence-based management recommendations require** much more **evidence** from the field
- Much more coordination and support for existing **long-term observing networks** are needed for info to test and improve model predictions of tree and forest response to climatic variability and change.
- Establish **field trial networks** in different regions along climatic gradients
- Development of rapid assessments for **optimal deployment of genetically improved planting stock**



- **Better understanding** of the behavior (survival, productivity, ecosystem services) of tree species and forests under changing climatic conditions
- **Growth, yield, biomass and wood quality forecasts** based on detailed site characterization (soils and climate) and under a full range of silvicultural regimes (stand density regime, fertilization regime, competing vegetation control, genetic tree improvement).



- Long-term experiments and studies due to relatively long length of rotation in European forests.
- Network of demonstration sites and/or ecosystem-level experiments that focus on fostering structural and functional complexity if managed forest ecosystems.
- Develop more knowledge on forest disturbance under climate change (storms, fire, drought etc.)
- More detailed spatial modelling as a tool for spatial planning and forest management



- Develop forest management **models that foster complexity and integrate ecology, social sciences and economics** in an interactive way as in put for better decision support systems.
- Develop appropriate **management strategies** that take a resilience perspective on forests/woodlands as **social-ecological systems**
- Design **Payment for Ecosystem Services programs** based on multi-criteria analysis, objective indicators and social preferences



- Determine the factors influencing **wood and fiber properties**
- Improve knowledge on the **link between silviculture and genetics**
 - for improving **wood quality and wood properties** (at macro- and microscopic level)
 - for tailored woodworking and construction, bio-chemical, and as well as bio-energy applications)
- Development of modern and **new test methods** for the evaluation of mechanical and other physical wood properties
- **Common European standards**, to show wood real performance

3. KEY INFRASTRUCTURE

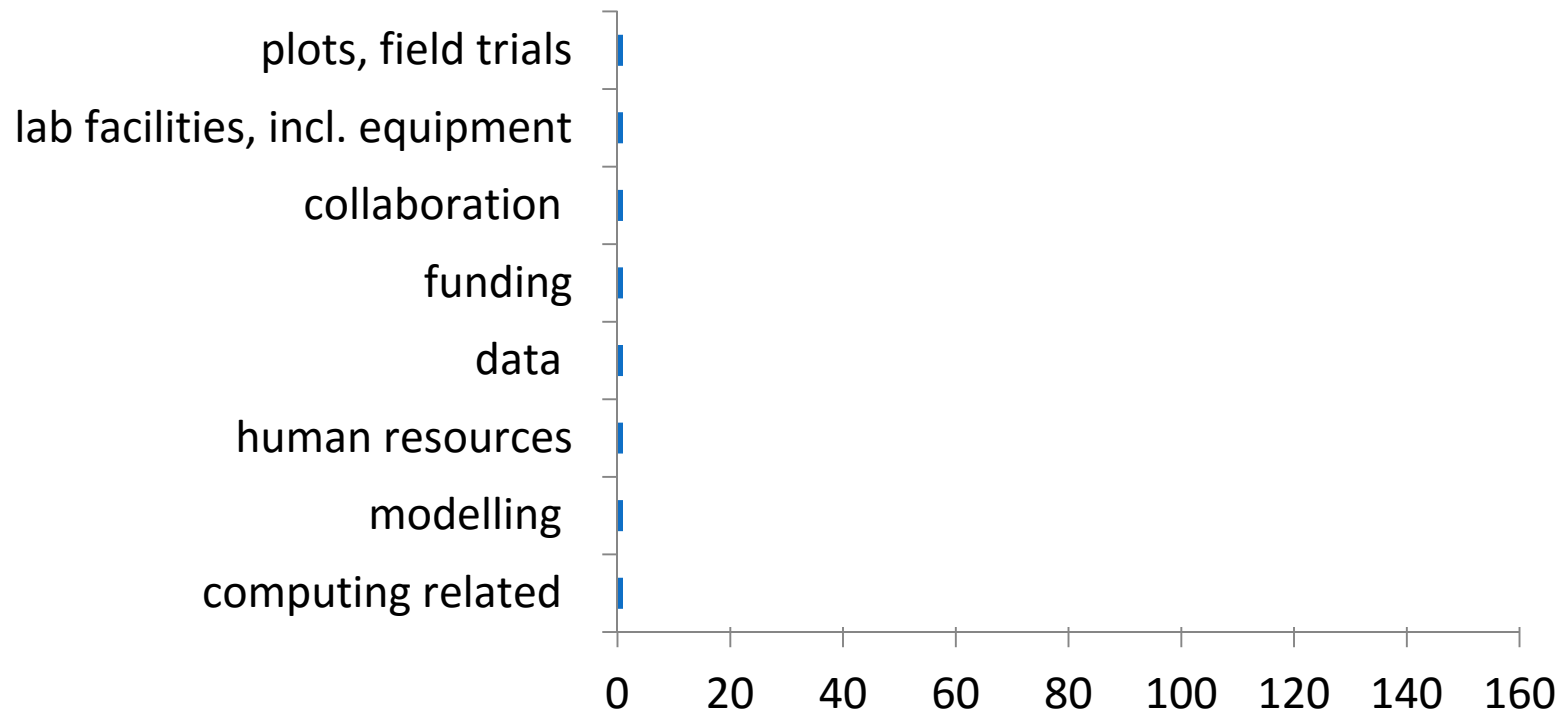
TWO TYPES OF ANSWERS:

1. VERY FOCUSED ON OWN NEEDS VS.
2. A BROADER VIEW ON THE EUROPEAN FOREST-BASED SECTOR NEEDS

TYPICALLY LATTER ONES CALLED FOR:

INCREASED COLLABORATION IN FORMS OF KNOWLEDGE AND DATA SHARING AS WELL AS SUPPORT FROM STAKEHOLDERS AND DECISION MAKERS.

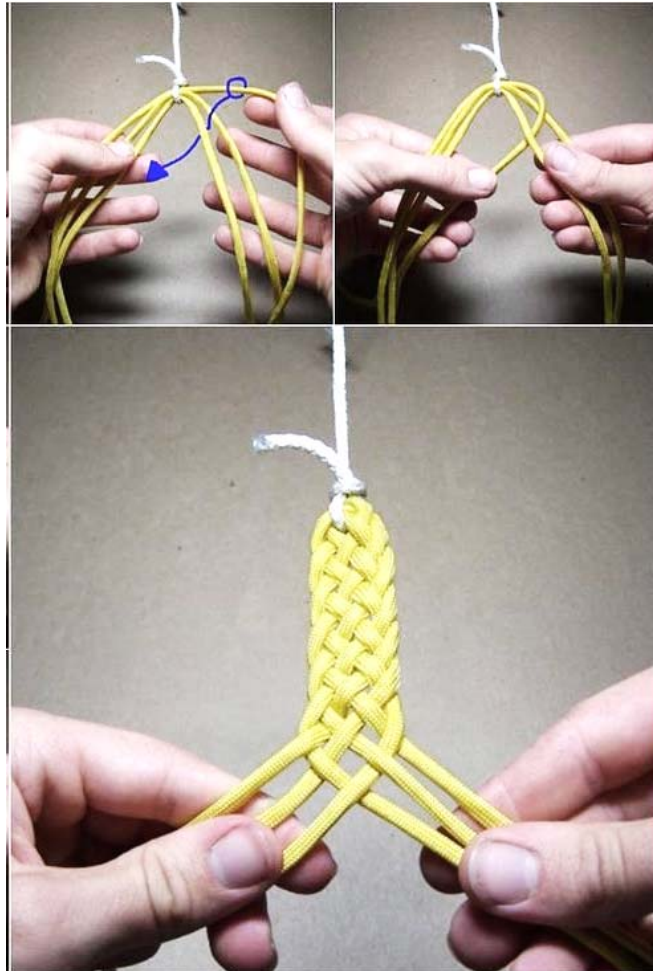
The key needs centre around **plots and field trials, lab facilities and also networks and collaboration.**



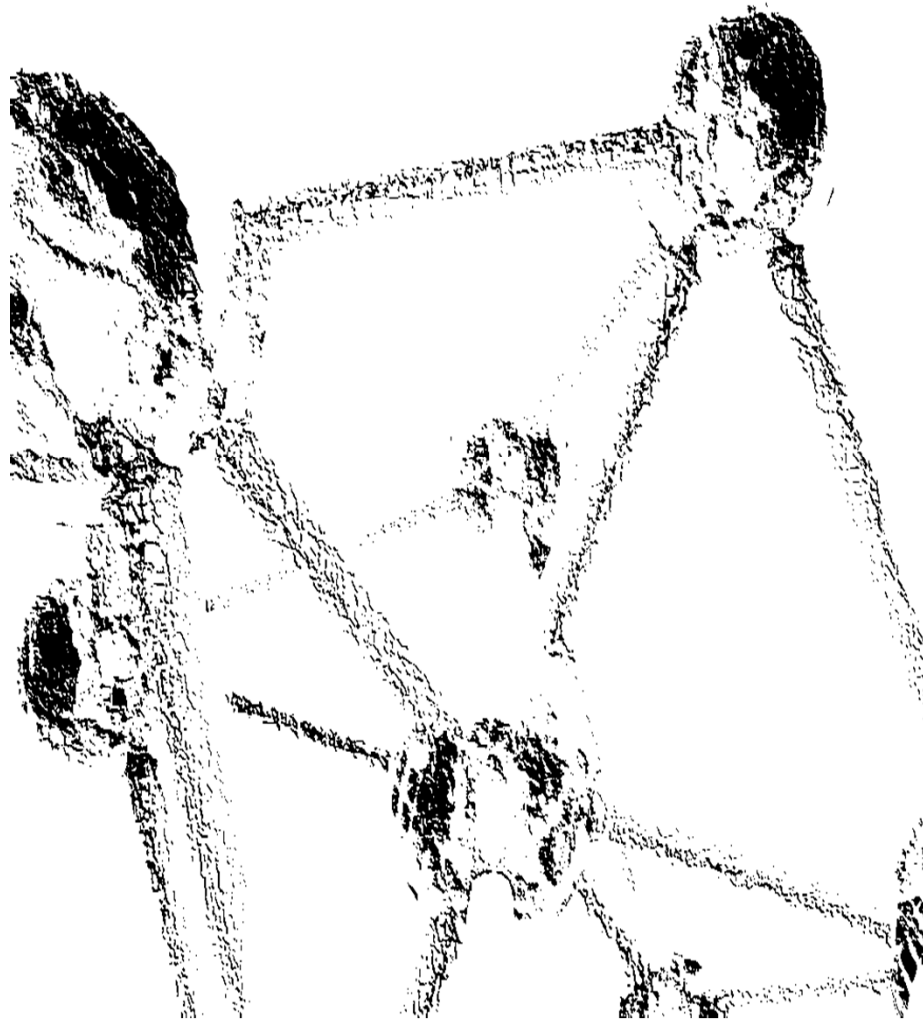


Picture: aspenface.mtd.edu

- Infrastructures to facilitate
 - sharing of **existing** in-situ and experimental **data**
 - **knowledge and tools** transfert
- **More long-term, systematic** collection of real-life data, from experiments on forest to laboratory-scale, across gradients and site conditions
- **Integrate** highly instrumented field sites and laboratory facilities combined with **modelling** platforms
- **Standardization** of methods and test conditions



- More collaborative **expertise networks** across disciplines and countries
- Develop open and participatory **laboratory networks** and facilities for smart sharing equipment and developing joint approaches
- Integrate social sciences
- Integrate economics research



- **Sustainable Cooperation** between academic and technical research institutes and industry -> **science-practice networks**
- **Scientifically-sound dialogue** and increased acceptance by policy-makers, administrations, practitioners and society for tree biotechnology/gene technology

