

Visionary views from emerging sciences

Introduction: towards frontier research

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The scientific dimension in the SRA elaboration

- **the FTP Scientific Council: a broad range of expertise, including on emerging fields** (ICTs, advanced biology, bio-energy)

- **the SC contribution**

 - vision document (challenges, opportunities, strategic objectives)

 - SRA guiding principles; criteria for prioritization

 - participation to value chain working groups

 - SRA structure

 - reviewing Target Areas and Research Themes

 - links to other TPs

 - addressing short, and long term perspective (**frontier research**)

- **next step**

 - implementation phase,

 - SRA: an evolving product to be regularly updated

Frontier research (FR)

- Distinction basic/applied research irrelevant: emerging areas of science and technology embrace both > **frontier research**
- FR connects better science to technology
- Frontier research at the forefront of creating new knowledge and developing new understanding
- FR : an intrinsically risky endeavour
- FR pursues questions irrespective of established disciplinary boundaries (multi, inter, trans-disciplinary research)
- FR requires broad range of knowledge and skills not present in all countries
- FR needed for being innovator and not imitator

Some key challenges for FR

- **Reinforcing excellence, with a focus on new, fast growing research areas**
- **Staying ahead in a world of growing scientific and technological competition**
- **Linking science to technological innovation**
- **Competing for talents and attracting the best researchers**
- **Encouraging greater investment, in particular from the private sector**

Emerging science areas

- **life science and biotechnology** (Remy Petit)
- **nanosciences, nanotechnologies** (Tommy Iversen)
- **complex systems science**
- **social and economic integration** (Peter Gärdenfors)
- **information and communication technologies** (Risto Ritala)



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Session moderator: *Yves Birot*

Introduction

Yves Birot

- A DNA-based approach for integrated management of forest resources

Remy Petit

- Paper as a tool for thinking

Peter Gärdenfors

- A nanotechnology roadmap for the forest products industry

Tommy Iversen