Future & Emerging Technologies

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Guiding principles of FET initiatives

Continuity of funding

Follow research over various stages of maturity

Build and sustain scientific excellence

- Scientific excellence is dynamic.

(Projects need be receptive to new ideas and new groups)

- Encourage competition.

-Clear goals make achieving excellence easier.

Implement policy priorities

(try to reconcile policy priorities with needs of research)

FP6 priority: Towards European Research Area (ERA)

One first consequence of these principles:

Promote inclusion of researchers from enlargement states.

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Instruments to fund integration/coordination of research

CA, Co-ordination action

- Example: Quiprocone
- Ensure all coordination activities of initiative
- Setup advisory board for initiative
- Prepare linkage with national programmes: ERA
- Roadmap for research , ...

NOE, Network of Excellence

- Integrate research activities in initiative
(physics <--> CS, algorithms -> hardware)
- Funding of small research projects and grants on competitive basis (e.g emergent ideas in assessment stage)
- most CA activities could also be funded with NOE.

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Instruments to fund objective-driven research

1. IP, Integrated project: mini research program

-Primary funding instrument for objective-driven research in QIPC.

-Non-linear programme execution: Explore alternative approaches.

-Open to new partners if they bring in new solutions to address goals.

2. STREP: Specifically Targeted Research Project

- Stair case to excellence
- Funding of new ideas not fitting IP priorities.
- Funding of new groups.
- Fixed consortium and clearly defined work plan.

(STREP only available in FET OPEN)

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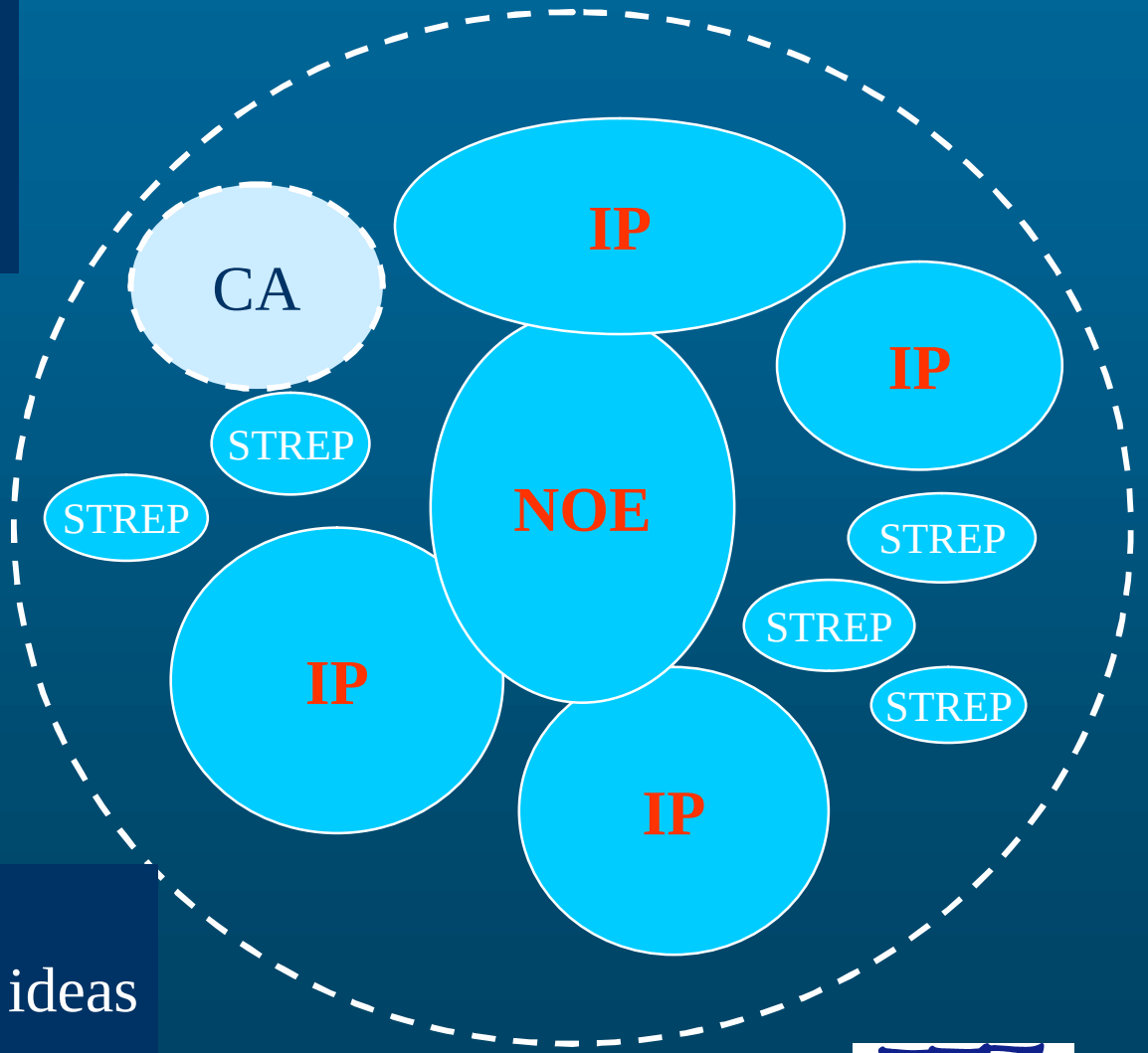
Organization of activities *within* initiative

CA:
forum of initiative
advisory board
coordination activities

NOE:
integration of research

IP :
objective-driven
research

STREP :
uptake of emergent ideas
(FET-OPEN)



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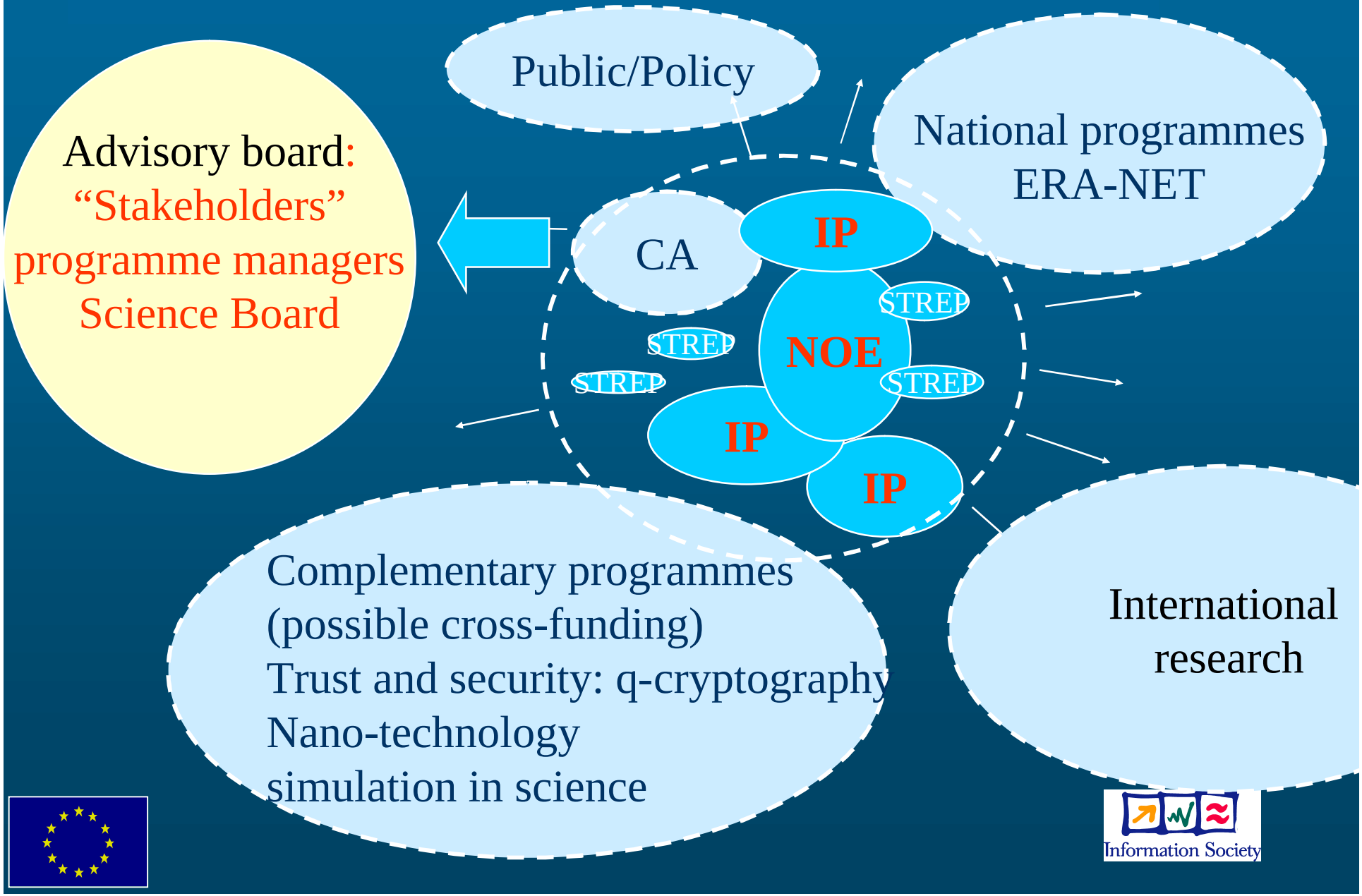
Linkage of initiative with the outside



Structuring research in QIPC

- N (N>1) IPs: research towards a quantum processor.
- IP/ NOE on QI theory and algorithms.
- NOE to integrate research and ensure uptake of new ideas/groups

NOE or IP for QI theory and algorithms ?

NOE: clearly demonstrate integration.
Integration between physics and CS.
Research funding on competitive basis

IP : clearly demonstrate long-term objective

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How to best ensure openness to new approaches and groups

IP are open to new groups and ideas if they contribute new solutions to IP goals.

NOE to ensure uptake of emergent ideas and to include groups not directly contributing to IP goals.

FET Open (STREPs) could take up promising novel research ideas

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Sustaining the QIPC community

NOE and CA will ensure integration of community by ensuring communication between IPs and financing research cutting across IP priorities

IP in a given area does ***not*** necessarily include all the community. Attempt to include all of a given community could blur clear research goals and reduce scientific excellence.

Primary goal of IP: reaching of a long-term objective and creation of new knowledge!

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What budget is needed?

FP5 budget for QIPC in FET:
27 M€ (spread over roughly 6 years)
(plus FET OPEN projects and quantum cryptography)

Budget needed to match FP5 funding level
20-25M€ (spread over 4-5 years)
(plus possible STREPS)

Issues influencing budget
National funding be effectively complemented/included.
Budget increase can sustain leadership of Europe in QIPC.
Need to match funding in other parts of the world.
MAIN CRITERIUM: quality of research proposed.

Launch of call: beginning 2004
Start of projects: beginning 2005

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