Integration and internal collaboration in European R&D collaboration projects

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• Background

• Internal collaboration in FP projects
  – NEST study
  – IP study
  – FP5 survey

• Implementation of internal collaboration rules in the SKEIN model
NEMO background

• Seven Framework Programmes since 1984
  – Focussing and integrating research efforts in EU
  – Have significantly advanced research collaboration in Europe
  – Durable links between individuals and organisations
  – Size and duration of collaborations increased

• NEMO goals
  – understanding the interplay between internal and external collaboration rules, structure and function of politically induced R&D projects…
  – finding network structures which deliver ideal performance…
  – and analysing governance rules which encourage such ideal networks

• NEMO consortium
  – Nine partners
  – Three years (FP6/NEST)
Internal collaboration: three empirical datasets

- Networks are a methodological tool for analysing integration in European R&D
  - Collaboration projects constitute the building blocks of the networks
  - But what is going on within the projects?
  - The results are used in the different modelling approaches within NEMO -> Example: the SKEIN model

- NEST sample (FP6)
  - Seven projects in New and Emerging Science and Technologies - programme

- IP sample (FP6)
  - Five Integrated Projects in information society technology, sustainable development and aerospace

- FP5 survey sample
  - 1686 responses (3%) covering 1089 FP5 projects (12%)
Collaboration experiences in FP-funded projects

- Criteria for partner choice
- Learning and knowledge production
- Factors promoting and impeding collaboration
Criteria for partner choice

- Prior collaboration
  - Trust and reliability
  - Prior collaboration within and outside FPs
  - Key role of coordinator

- Complementary expertise, excellence and recommendation
  - Personal contacts and competencies
  - Thematic proximity of organisations

- Expected future collaborations
  - In most cases wish to continue collaboration
  - Current contacts: expanding/downsizing
  - Partners holding a formal position are desired partners
  - Non-continuation of collaboration on the ground of poor performance
Learning and knowledge production

• Learning effects
  – Learning content
  – Learning communication & shared language
  – Learning procedures

• Knowledge production primarily in work packages
  – Communication facilitated by small size of (sub)structures
  – Actual and formal collaboration structures converge
  – Exploration in project level, exploitation in WPs

• Reputation and visibility of key partners
  – Key role of senior scientists
  – Coordination and WP leadership increase visibility and reputation
Factors promoting and impeding collaboration

• Size of the project
  – Small size of (sub)structures increases cohesion, trust and perceived collaborativeness of knowledge production
  – Preferred size 5-10 partners

• Project management and cohesion
  – Maintaining good atmosphere and managing emerging problems
  – Clear and well structured work packages
  – Cohesion -> team work, feeling of shared purpose
  – Making conscious effort to collaborate and communicate
Factors promoting and impeding collaboration 2

- Disciplinary background of the partners
  - Crucial to establish shared terminology and understanding of research questions
  - Multidisciplinary research challenging but inspiring
- Organisational background of participants
  - Different interests in knowledge production (+/-)
  - Effect of costing models
  - Different types of projects: basic research, societal concern and mission oriented projects
- Language and geographical proximity
  - Not described as important in self-assessment
  - However, impact evident in empirical analysis
Summary

• Analysis combines different samples, yields similar results
  – In-depth analysis
  – Good representativity
• Results are based on real people and processes
• Provides basis for modelling realistic sub-structures and processes
  – Formulation of rules suitable for the different modelling approaches
  – > SKEIN model
Rules for six project stages

- Consortium formation
- Proposal submission
- Funding decision
- Task division
- Intra-project collaboration
- Future collaboration
## Rules for six project stages

<table>
<thead>
<tr>
<th>Rule code</th>
<th>Rule content</th>
<th>Special theme</th>
<th>Data sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>If we get invited to join the project [AND (we have had prior cooperation with the coordinator or other partners) OR (we want to broaden our network and increase our visibility) OR (it fits our research profile/priorities) OR (we are looking for funding) OR (it's in a field we want to expand to)] we join the project.</td>
<td>Being invited</td>
<td>NEST interviews: 1Wa, 1Wb, 1Wc 4Wa, 6O, 3Wb 3O, 5O, 6W 3Wb, 1Wd, 2Wb 5W, 2O  - Supported by IP's and survey</td>
</tr>
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- Research network of the agent
- Part of KENE/partnering strategy

Basic assumption in the model
Implementation of the rules in the SKEIN model

Consortium formation

Proposal submission

Funding decision

Task division

Collaboration

Future

- Implementation of the rules in the SKEIN model
- Consortia formation
- Future
- Proposal submission
- Funding decision

Diagram:

1. Setup
2. Possibility to make proposals
3. Invite partners for proposals
4. Formulate proposal
5. Enough partners
6. Get invited for proposals
7. Possibility to join proposals
8. All other
9. Private research
10. Institutes who want to modify their knowledge
11. Evaluate & dissolve projects
12. Ending projects
13. Evaluate project research
14. New project research
15. Continue project research
16. Start project & dissolve proposal
17. Accepted proposals
18. Rejected proposals
19. All other