

Effectiveness of policies for innovation on a local level: a comparative study of social networks

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General objective:

Study reflexivity in the context of innovation projects (EU funded projects) in the Netherlands and in Germany in which many different stakeholders (university, firms, other organizations) enter into a network to develop together a new product or technology

Specific objective:

Investigate *social* reflexivity in the framework of Reflexivity Theory of Donati (2011) and to detect the link between social reflexivity and efficiency/effectiveness of innovation projects

Main thesis:

Presence of social reflexivity at the group level increases efficiency and effectiveness at the end phase of innovation projects

Hypotheses:

- Networks with social reflexivity are more interconnected and the actors of the network are more aware of their relationships in the network
- Not only project leaders but also other actors have a central role in projects with social reflexivity

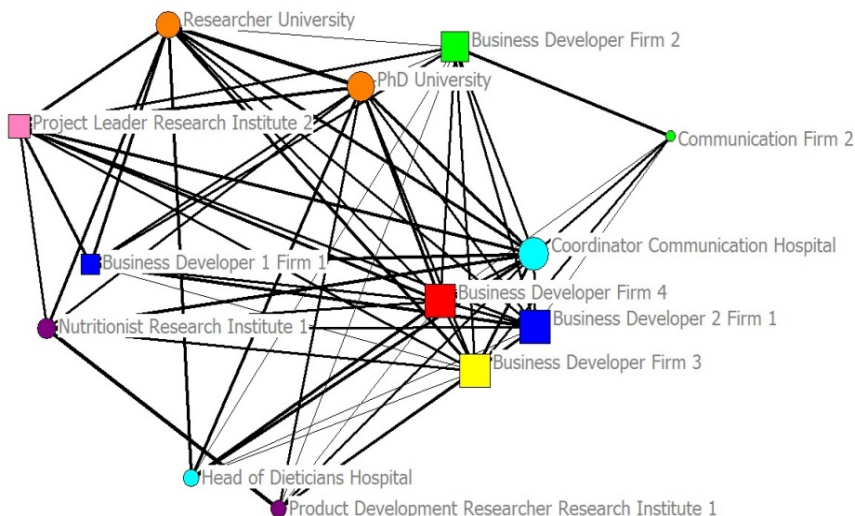
Projects	Sector	Total number and types of organizations involved in each project	Budget (public co-financing) ERDF – European Regional Development Fund	Project duration
DE_CONTROL	Biotechnology	1 public university 4 high-tech SMEs 1 large company	€ 2.161.969 granted in total (ERDF contribution € 1.543.029)	10/2010 – 12/2013 (extended until 12/2014)
DE_REFLEXIVITY	Biotechnology	2 small high-tech firms 1 public university 1 public university/hospital (3 departments) 2 research centres (public/private)	€ 4.747.168 granted in total (ERDF contribution € 2.770.870)	11/2010 – 12/2014 06/2014 - 12/2015
NL_CONTROL	Biotechnology applied to food	2 large firms both multinational 3 public universities 1 research centre (private)	€ 2.663.556 granted in total (ERDF contribution € 877.852)	09/2011 – 12/2014 (extended until 12/2015)
NL_REFLEXIVITY	Biotechnology applied to food	1 public university 2 research centers (public/private) 1 SME (formed by two independent start-ups) 3 large firms (two of them multinational) 1 Public Hospital	€ 2.457.195 granted in total (ERDF contribution € 819.065)	01/2012 – 06/2015 (extended until 12/2015)

RESULTS (I): WHOLE NETWORKS – QUESTIONNAIRE (data refer to the last six months of the projects)

Actors with the same colour belong to the same organization; line weight represents strength of ties; node size and layout represents degree centrality; square = male, circle = female

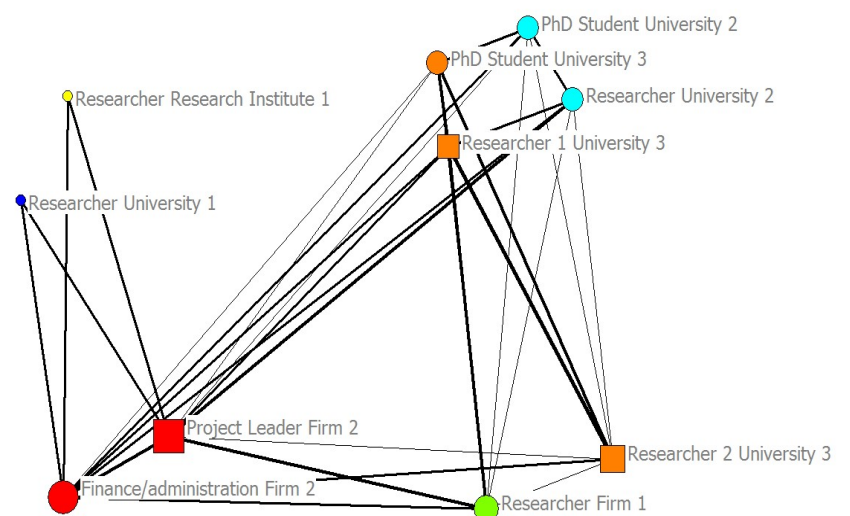
NL_REFLEXIVITY

Number of nodes 13; respondents rate 69%



NL_CONTROL

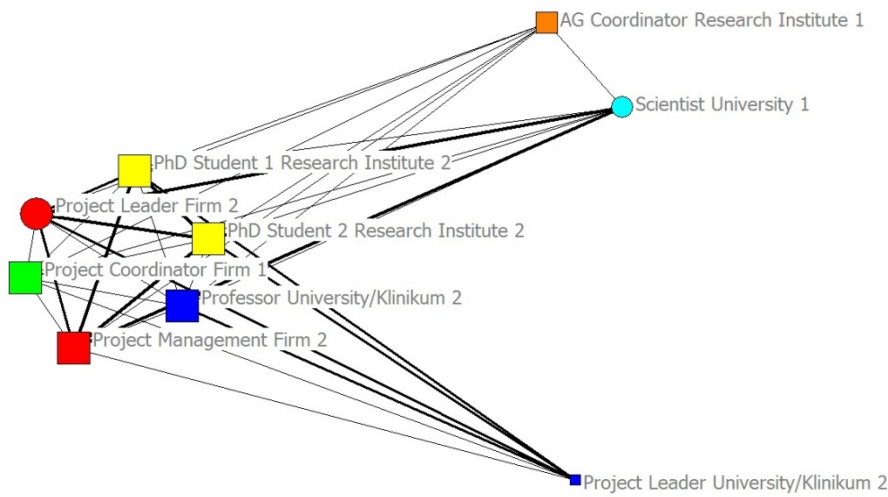
Number of nodes 10; respondents rate 80%



→ Project with social reflexivity in the Netherlands is more interconnected, actors from different organizations collaborate together, and there are even actors who are perceived to be more central than the project leader. In the control project there are more separated subgroups and the project leader and his collaborator are perceived to be the most central actors.

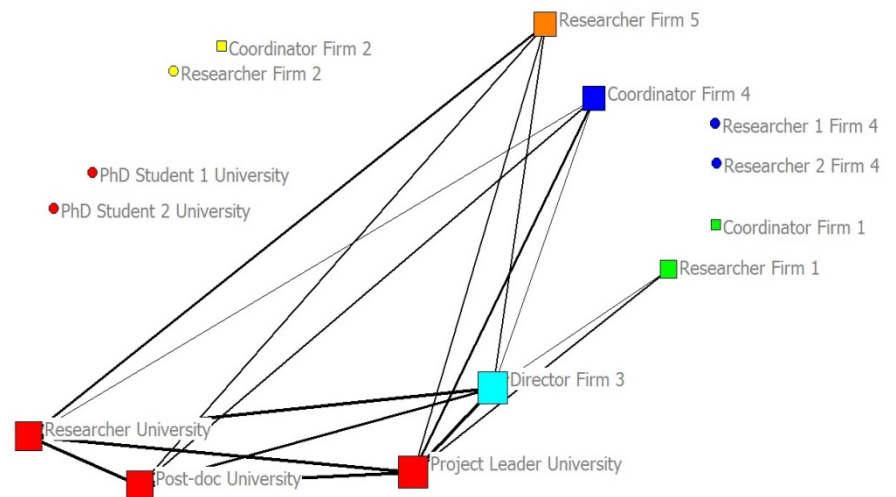
DE_REFLEXIVITY

Number of nodes 9; respondents rate 78%



DE_CONTROL

Number of nodes 14; respondents rate 50%



→ Project with social reflexivity in Germany reveals a central group of actors from different organizations and few peripheral actors/organization. In the control project some actors are unconnected and the project leader and his collaborators are perceived to be the most central actors.

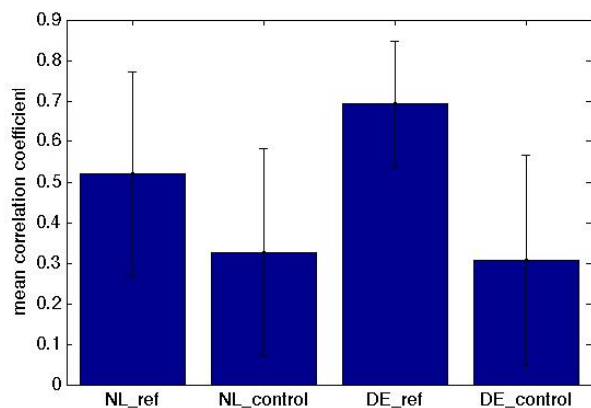
RESULTS (II): CORRELATIONS BETWEEN EACH PERCEIVED NETWORK OF THE RESPONDENTS AND THE WHOLE NETWORK FOR EACH PROJECT

NL_REFLEXIVITY	r	p
Project Leader Research Institute 2	0.697	< 0.001
Business Developer Firm 2	0.119	0.299
Business Developer Firm 3	0.496	< 0.001
Business Developer 2 Firm 1	0.064	0.58
Coordinator Communications Hospital	0.663	< 0.001
Researcher University	0.714	< 0.001
Nutritionist Research Institute 1	0.639	< 0.001
PhD University	0.644	< 0.001
Business Developer 1 Firm 1	0.653	< 0.001
mean	0.521	t(8) = 6.2, p < 0.001

NL_CONTROL	r	p
Project Leader Firm 2	0.402	0.006
Administration/Finance Firm 2	0.478	0.001
Researcher Firm 1	0.576	< 0.001
PhD University 2	-0.081	0.595
Researcher University 2	0.38	0.01
Researcher 1 University 3	0.62	< 0.001
Researcher 2 University 3	0.224	0.139
PhD. University 3	0.011	0.944
mean	0.326	t(7) = 3.6, p = 0.009

DE_REFLEXIVITY	r	p
Project Leader Firm 2	0.885	< 0.001
Project Coordinator Firm 1	0.638	< 0.001
PhD Student 1 Research Institute 2	0.697	< 0.001
PhD Student 2 Research Institute 2	0.717	< 0.001
AG Coordinator Research Institute 1	0.346	0.039
Scientist University 1	0.427	0.009
Project Management Firm 2	0.79	< 0.001
mean	0.544	t(6) = 3.4, p = 0.014

DE_CONTROL	r	p
Project Leader University	0.494	< 0.001
Researcher Firm 1	0.037	0.728
Director Firm 3	0.378	< 0.001
Coordinator Firm 4	-0.129	0.223
Researcher Firm 5	0.298	0.004
Post-doc University	0.534	< 0.001
Researcher University	0.537	< 0.001
mean	0.307	t(6) = 3.1, p = 0.021



ANOVA

	F	p
country	0.74	0.3978
reflexivity	10.76	0.003
country*reflexivity	1.16	0.2911

→ Projects with social reflexivity show an higher correlation between the whole network and the perceived network of each actor; not only the project leader has a precise idea of the general collaboration patterns of the project but also other actors from different organizations.

Conclusion: Quantitative data support the hypotheses that reflexivity projects are more interconnected and more actors have central roles compared to projects without social reflexivity. Qualitative data collected through interviews (not presented here) provide further evidence of the role of social reflexivity by elucidating the perception of change in the network during the time span of the project and the link between social reflexivity and performance.