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NETWORK ANALYSIS OF CO-OPERATION BETWEEN RESEARCH INSTITUTIONS – EXAMPLE OF ESPON PROGRAMME¹

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ABSTRACT

The aim of the paper is to characterise ESPON Programme (European Observation Network for Territorial Development and Cohesion) as a network-based international research programme and the evaluation of capacity of network analysis in studying scientific cooperation. Results of the study show that institutions involved in ESPON projects create a dense, closely interconnected network of co-operation. The network is dominated by a limited number of institutions, which are involved in large share of the projects and have the most expanded cooperation network. Spatial analysis proves that there is significant lack of institutions from Central-Eastern Europe in the Programme. Network analysis allowed to identify the most efficient methods for improving the presence of institutions representing new member states in the ESPON co-operation network.

INTRODUCTION

Network analysis is a method which is being applied increasingly frequently in analyses of various fields of cooperation, such as Internet, communications, economic cooperation, as well as scientific cooperation. The network analysis tools give a new perspective to studies on the nature of cooperation, going beyond the classical variables of, e.g. statistical analysis. Moreover, as compared to classical measurements, the network analysis allows to identify the structure of connections, and thus the social capital resulting from cooperation. This approach to include the spatial variables connected with collaboration studies, and as a consequence allows to adjust the public and social intervention programs to the existing formal and informal structures (Malerba, 2009).

Even though network analysis is widely used by sociologists as well as organization and management theorists, it is still lacking recognition in applied research (Eisenberg & Swanson, 1996; Provan et al., 2005). Network analysis may supply new information on the structure of connections between the actors in the network, proving itself useful in creation of cooperation systems and designing organizational structures. (Kadushin et al., 2005; Provan et al., 2005). This applies both to cooperation within a single institution, and cooperation between various institutions. Moreover, network analysis proves useful not only in describing the structure, but also analysing the functioning of the cooperation systems, behaviour of particular actors, as well as the impact of those phenomena on efficiency in meeting objectives of such cooperation (Cross et al., 2009).

In the academic literature network analysis is often used in describing scientific cooperation in various research programmes. The characteristic feature of these programmes is that they are jointly implemented by research institutions organized into consortia. The projects have their characteristic, as well as selection and implementation procedures. Most often the selection is based on competition, which means that from time to time there are calls for proposals, followed by tendering stage, selection stage, and then the winning consortia having specified time for implementation of the projects. Taking this into account, an important feature of the research programmes is their periodicity, allowing for repeated participation of the institutions in various projects and institutional configurations.

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This article does not necessarily reflect the opinion of the ESPON Monitoring Committee.

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OBJECTIVE OF THE PAPER

The aim of this paper is to characterise ESPON programme as a research programme based on international cooperation. ESPON programme is analysed against the background of results of other research programmes stimulating scientific cooperation, and in particular the EU Framework Programmes. The authors present the aims of the ESPON programme, its assumptions and institutional context, and the mechanisms used for stimulating cooperation. The empirical part of the paper consists of analysis of ESPON programme participation, conducted on three levels: individual research institutions, cities, and countries in which they are located. Another element of the analysis concerns cooperation in the Programme presented on the institutional level using basic measurements of centrality (*degree centrality* and *betweenness centrality*). The analyses proposed in the article are supposed to answer the following research questions:

- What is the extent of participation of institutions, cities, and countries in ESPON programme? (is it "balanced" or dominated by some particular entities?)
- What is the shape of cooperation network within the programme? (is it very centralized or consists of unconnected components?)
- What potential effects on the programme, in terms of scientific results (adequacy of analyses for all countries included in the programme, the number of case studies), may have such involvement of its participating institutions?

NETWORK ANALYSIS – THE BASICS

Each network consists of nodes and relationships between them. The nodes can be people, organizations or their units, events, projects, etc. The network nodes have some attributes, or features (in the case of organizations it is e.g. the number of employees, their competences, financial data, etc.). The forms of relations may include exchange of information, cooperation, participation in the same projects, but also mutual competition. The flows take place between the nodes and along the relations, so to say (for organizations they may include flows of funds, information, employees, etc.). The relations between the network nodes may be measured in many ways, among them by the frequency of interaction, its length, simple or complex character (e.g. overlapping social and organizational relationships) (Hörlesberger & Dachs, 2002). Development of network analysis gave rise to many specialist concepts (cf. e.g. Wasserman, Faust, 2007; Freeman, 2004). The article makes use of only some of the possibilities created by this research approach. In particular we use nodes centrality measures defining the position of nodes in the network in respect of their prestige, influence on other actors and access to information (or even control over information flow).

RESEARCH PROGRAMMES AS TOOLS FOR STRENGTHENING COOPERATION

Research programmes most widely analysed in the literature are the so-called EU Framework Programmes (Almendral, Oliveira, Lopez, Mendes, & Sanjuan, 2007; COWI A/S, 2009; Garas & Argyrakis, 2008; Hörlesberger & Dachs, 2002; Kopcsa, Topolnik, & Schibany, 1999; Paier & Scherngell, 2008; Rønne, 2009). Framework Programmes have a significant budget dedicated to research, and are aimed at increasing competitiveness of the Community scientific sector, and as a consequence increasing innovativeness in the economy as a whole. In order to provide adequate distribution of funds and knowledge, the programme promotes projects stimulating international cooperation and research conducted by network structures of consortia (Garas & Argyrakis, 2008). The network analysis of Framework Programmes shows that the network structure has a non-scalar character (as in the case of other network phenomena, cf. e.g. Barabási 2003) and grows practically exponentially. Moreover, regardless of the level of analysis (unit, institution, country), the cooperation networks always have similar shape. Finally, cooperation is much more likely between institutions of similar size and with similar potential, than between institutions differing in size (Almendral et al., 2007).

Other studies show that as a result of participation in Framework Programmes the institutions with no previous experience in such research programmes significantly change both their approach to science, research methodology, and organization of work. Rønneest underlines that institutions previously using sectoral approach, concentrated on basic research, with unclear relations between research institutions and business, and not focusing on communication and visibility of projects significantly changed their practices in consequence of their experiences in Framework Programmes. Participation in the programmes contributed to development of interdisciplinary approach, network cooperation, focus on applied research, increased cooperation with the public sector and business, greater awareness and professionalism in project management and sharing the results (Rønneest, 2009). Other analyses show that as compared to other national research systems (not concentrating on cooperation) the Framework Programmes give their institutional participants advantage over national institutions not cooperating internationally, on the one hand, and to increase impact of the results obtained by the cooperating institutions, on the other (Kopcsa et al., 1999).

Most frequently the research programmes financed from public funds are aimed at providing knowledge required by various stakeholders such as politicians and bureaucrats in decision-making, formulating public programmes, and strategic planning. The type of the research institutions implementing a given project may significantly influence the interpretation of the obtained results, and as a consequence the method of formulating recommendations for people dealing hands-on with the issues. Therefore it is particularly important to learn about the mechanisms affecting cooperation between research institutions and individual researchers representing these institutions. (Garas & Argyrakis, 2008).

The abovementioned examples prove that from the point of view of individual countries participation of their national institutions in research programmes focusing on cooperation is particularly important. It contributes to strengthening the country's innovative, scientific and research potential. Moreover, as far as policy-making is concerned, it allows for formulating and promoting the perspective and interests of a given country through research reports' conclusions and recommendations. Unfortunately, institutions representing the new member states are still underrepresented in the EU research programmes. Evaluation of Framework Programmes shows that the most important barrier for institutions from the new countries in joining the cooperation network is lack of key resources, which in this case are particularly crucial, i.e. direct foreign contacts allowing to enter the network. Another important barrier is the language barrier (the majority of research programmes is conducted in English) (COWI A/S, 2009, pp. 44-45).

ESPON 2006 PROGRAMME AS A PLATFORM FOR SCIENTIFIC COOPERATION

The subject of analysis in this paper is the international cooperation of research institutions within ESPON 2006 Programme. ESPON stands for European Observation Network for Territorial Development and Cohesion. It is a research programme focused on to spatial development and related to EU Structural Funds. The Programme began in 2002 and the activities covered by its first edition, finished in 2006, were financed by the European Commission from the Community Initiative Programme INTERREG III, and partially by the member states plus Iceland, Norway and Switzerland. Its managing authority is located in Luxembourg.

ESPON, as compared to Framework Programmes, is several times smaller and its constitutive measures have significantly narrower scope. 128 research institutions from the whole Europe participated in 31 research projects within the Programme, as well as supporting and coordinating activities, since its launch in 2006. An important supporting structure for ESPON Programme is the network of national ESPON contact points, linking stakeholders and researchers in all member states. The representatives of ministries from all the countries involved in ESPON Programme as well as representatives of the European Commission from the Monitoring Committee are supposed to ensure practical usefulness of the conducted research.

The aim of the programme is to provide the stakeholders and practitioners at the Community and regional level with consistent, new and comparable information on trends in European territorial development, as

well as on impact of the implemented policies on European regions and areas. This knowledge is supposed to directly support formulating and implementing strategic objectives. ESPON Programme is supposed to provide knowledge exceeding the standard, traditional analyses performed by the European Commission. Other objectives of the Programme include bringing together researchers, officials, and policy-makers in order to allow for better mutual understanding of their perspectives and creating a network of scientific cooperation in EU spatial studies and development (European Commission, 2004).

The main Programme document stresses the fact that ESPON is based on national and regional experience and resources, and that the cooperation between the scientific centres is supposed to contribute to sharing skills, knowledge, and experience, consequently bringing about beneficial synergy effects. The document explicitly states that the programme goals and optimum use of the financial and organizational resources can be adequately attained only by network cooperation. Moreover, the cooperation shall lead to mutual understanding of the perspectives and needs between stakeholders and scientists, as well as working out a common communication platform for the parties (European Commission, 2004).

Consequently, this means that the institutions conducting research projects within ESPON Programme have significant influence on the directions of future political decisions and strategic planning, in particular in respect to EU territorial development policy, as well as the EU Cohesion and Competition Policies. This also differentiates ESPON from the Framework Programmes, allowing ESPON results, to have potentially much more significant impact on the Community's decision-making, despite its significantly smaller scale. This is one more reason for conducting a close analysis of its cooperation structures.

FORMAL CONTEXT OF COOPERATION WITHIN ESPON 2006 PROGRAMME

Before proceeding with the main part of analysis of the scientific cooperation within the ESPON 2006 programme we should shortly discuss the formal context of the cooperation, i.e. characterize the procedures regulating participation in activities within ESPON 2006 Programme.

The most important principle differentiating ESPON from other research programmes is the "one project – one research consortium" principle. The research topics are not proposed by research institutions, but strictly specified by the European Commission, as the project implementation is *de facto* commissioned by it. At the competition stage several competing consortia present their offers of research implementation.

Research consortia, or the Transnational Project Groups (TPGs), are formed in the process of self-organizing supported by the national contact points. Each such consortium consists of institutions representing at least three various countries from the Programme's area (EU + the partner countries). The consortia should cooperate with at least one contact point, preferably from the country of the lead partner, in order to allow for networking with other, parallel projects and the program coordination unit (ESPON Coordination Unit, 2003).

The objective of each project is to provide specific and innovative results, complementing towards the national results, and not repeating the existing studies. Therefore each offer is assessed against three criteria: its content, project management and division of work, and the qualitative institutional and staff potential of the partners. The highest scores are obtained by the projects proposing high quality solutions consistent with the assessment criteria, providing equal division of work between the partners and ensuring balanced geographical representation of the partners in the projects. We can see that two out of the three evaluation criteria clearly contribute to promoting the networking character of the scientific cooperation within the Programme. The Programme is also expected to ensure close cooperation between the teams implementing particular projects, so that at each stage of the research activities, observations and results are shared, allowing for additional synergy effect (European Commission, 2004).

QUANTITATIVE ANALYSIS OF PARTICIPATION IN ESPON 2006 PROGRAMME

INSTITUTIONS

ESPON 2000-2006 programme included implementation of 31 projects by 228 project partners from 128 institutions. Individual projects were implemented by consortia of 2 to 14 partners. 87 institutions (69%) took part in only one project, while 22 of them (17%) took part in two projects. Only 19 institutions took part in 3 or more projects. The most active institution, NORDREGIO from Stockholm, participated in as many as 12 projects – i.e. one third of all of the implemented projects. The most active research institutions (participating in at least three projects) are presented in Table 1. The role of the lead partner was held by 25 out of 128 institutions³. 19 of them coordinated just one project. The following 4 institutions coordinated 2 projects each: Austrian Institute for Regional Studies and Spatial Planning (ÖIR), CNRS-UMR DATAR – Université Paris 7, ECOTEC - Research and Consulting Ltd. (Brussels), Federal Office for Building and Regional Planning (BBR). Lead partners of the greatest number of projects, i.e. 3, were: IGEAT - Institut de Gestion de l'environnement et d'aménagement du territoire, Free University of Brussels, and Nordregio.

Table 1. The research institutions most active in ESPON 2000-2006 programme

| name of the institution | country | city | number of projects | number of projects as lead partner | degree centrality | betweenness centrality |
|---|---------------|-----------|--------------------|------------------------------------|-------------------|------------------------|
| Nordregio | Sweden | Stockholm | 12 | 3 | 66 | 1263 |
| Austrian Institute for Regional Studies and Spatial Planning (ÖIR) | Austria | Vienna | 9 | 2 | 50 | 681 |
| IGEAT - Free University of Brussels | Belgium | Brussels | 7 | 3 | 35 | 481 |
| CNRS-UMR Géographie-cités | France | Paris | 6 | 1 | 38 | 342 |
| MCRIT | Spain | Barcelona | 6 | 0 | 42 | 347 |
| CUDEM, Leeds Metropolitan University | Great Britain | Leeds | 5 | 0 | 37 | 221 |
| EUROREG, University of Warsaw | Poland | Warsaw | 5 | 1 | 31 | 416 |
| Federal Office for Building and Regional Planning (BBR) | Germany | Bonn | 5 | 2 | 30 | 194 |
| Institute of Geography and Spatial Organization, Polish Academy of Sciences | Poland | Warsaw | 5 | 0 | 34 | 571 |
| Spiekermann & Wegener | Germany | Dortmund | 5 | 1 | 34 | 385 |
| Delft University of Technology / OTB Research Institute for Housing, Urban and Mobility Studies | Netherlands | Delft | 4 | 0 | 30 | 154 |
| IRPUD - Institute of Spatial Planning, University Dortmund | Germany | Dortmund | 4 | 0 | 24 | 760 |
| Politecnico di Milano | Italy | Milan | 4 | 0 | 28 | 168 |
| Swedish Institute for Growth Policy Studies, ITPS | Sweden | Östersund | 4 | 1 | 26 | 236 |
| University of Joensuu | Finland | Joensuu | 4 | 1 | 29 | 738 |
| Faculty of Economics (Sefemeg), Università Degli Studi di Roma Tor Vergata | Italy | Rome | 3 | 1 | 19 | 46 |
| Institute for Regional Development and Structural Planning | Germany | Erkner | 3 | 1 | 15 | 89 |
| National Technical University of Athens, Department of Urban and Regional Planning | Greece | Athens | 3 | 0 | 27 | 124 |
| TAURUS, University of Trier | Germany | Trier | 3 | 0 | 19 | 18 |

Source: prepared by the authors.

³ Two projects were coordinated jointly by two institutions: ESPON 3.4.3 "The modifiable areas unit problem", and ESPON 3.2 "Spatial scenarios in relation to the ESDP and EU Cohesion Policy".

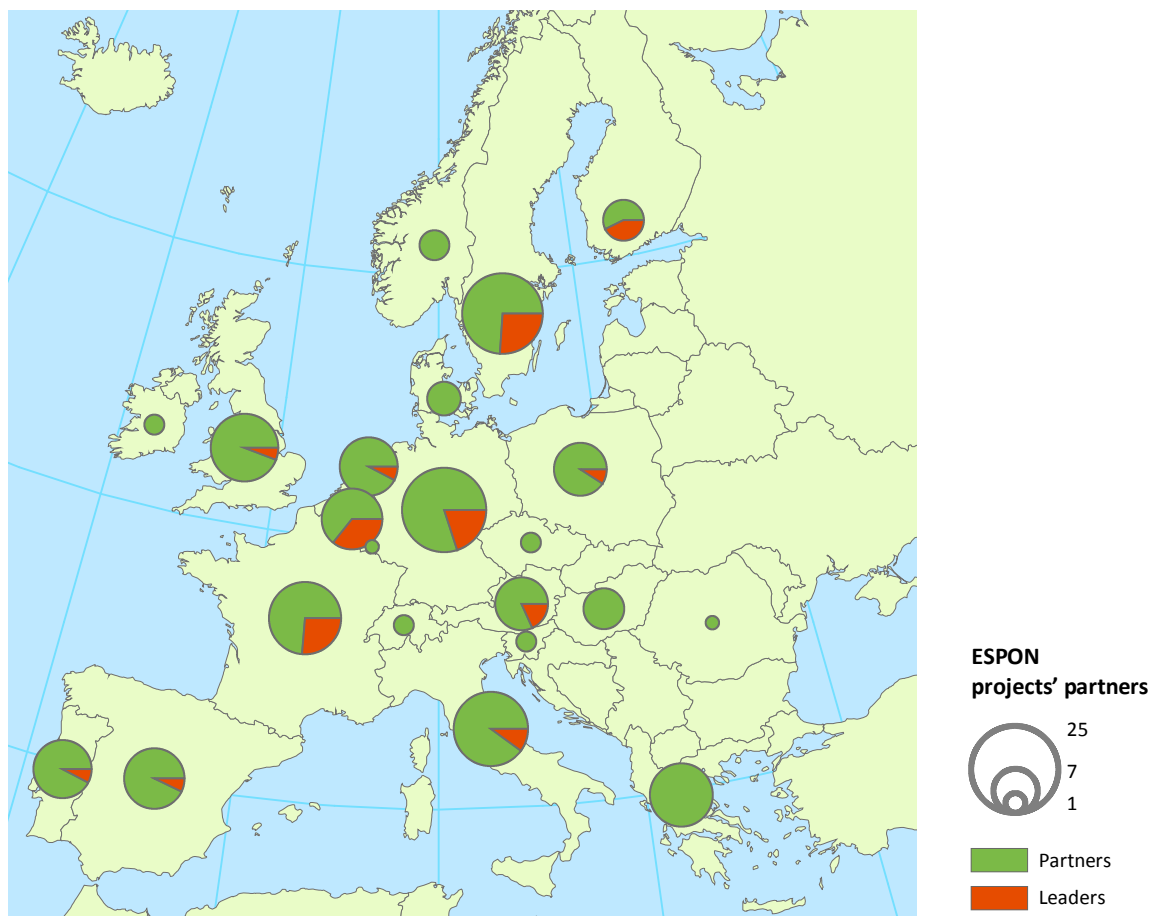
CITIES

Institutions implementing the projects within ESPON Programme were located in 85 cities (separate administrative centres). 46 of those urban centres (54%) were represented in only one project, 16 (19%) were represented in two projects, 14 (16.5%) in 3-5 projects, and 9 (10.6%) in 6 and more projects. The most active urban centre was definitely Stockholm – the institutions based there (Nordregio, EuroFutures and Frederiksson&Partners AB, The Royal Institute of Technology) were represented in 14 projects (i.e. in almost half of all research projects implemented within the ESPON 2006 Programme). Another urban centre with high representation in ESPON projects is Brussels (11 projects). Institutions from Athens, Warsaw, and Vienna participated in 10 projects, those from Dortmund in 9, and from Barcelona and Paris⁴ in 7. Institutions leading ESPON projects were based in 21 centres. Institutions from Stockholm and Brussels coordinated five projects per each city, 3 projects were coordinated by institutions from Paris, and institutions from Bonn and Vienna coordinated 2 projects per each city.

COUNTRIES

ESPON 2000-2006 Programme included 29 countries (EU 27 + Norway and Switzerland), and institutions from all of these countries could have participated in the Programme. The number of countries from which no institution participated was, however, as high as seven (Bulgaria, Slovakia, Lithuania, Latvia, Estonia, Cyprus, and Malta). The projects were coordinated by institutions from 12 of the countries. As many as 6 projects were coordinated by Swedish institutions. Institutions from Belgium, France, and Germany coordinated 5 projects per each of the countries. Finnish institutions coordinated 3 projects, and Austrian and Italian – 2 projects per each of the countries. Spanish, Dutch, Portuguese, Polish, and Italian institutions coordinated one project per each country.

Map 1. Participation of institutions from European countries in ESPON 2000-2006 programme



Source: prepared by the authors.

⁴ Moreover, participant in one of the projects was LATTs - Laboratoire Techniques, Territoires, Sociétés à l'Ecole Nationale des Ponts et Chaussées in Marne-la-Vallée, located at the suburbs of Paris and belonging to the Paris agglomeration.

Greater or lesser participation from a given country or region in the implemented projects may as a consequence influence the quality of analyses relating to a given area. Local experts tend to know best the situation in their own country. Simultaneously, lack of local experts in some projects results in superficiality of analyses, or even obvious errors and blunders (cf. Gorzelak, Olechnicka 2009). Issues specific for individual countries may be presented in case studies – both at the national, regional, and local level. Case studies usually require more specific knowledge than analyses at the European level, and therefore most frequently local experts must be included. Thus countries being particularly active participants in ESPON projects (institutions from those countries taking part in many projects) will typically be more frequent subject of case studies within ESPON projects (cf. Fig. 1). The correlation demonstrates that participation in ESPON Programme brings not only benefits for particular institutions or prestige for the country, but more importantly provides opportunity for conducting detailed analyses of spatial phenomena which are crucial for that country.

Fig. 1. The number of project partners from a given country and the number of case studies devoted to that country

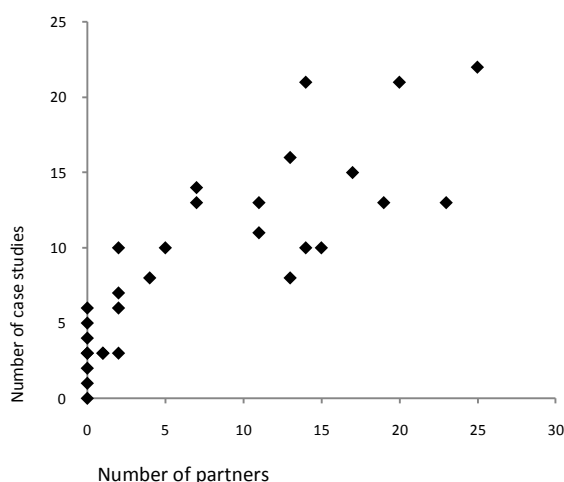
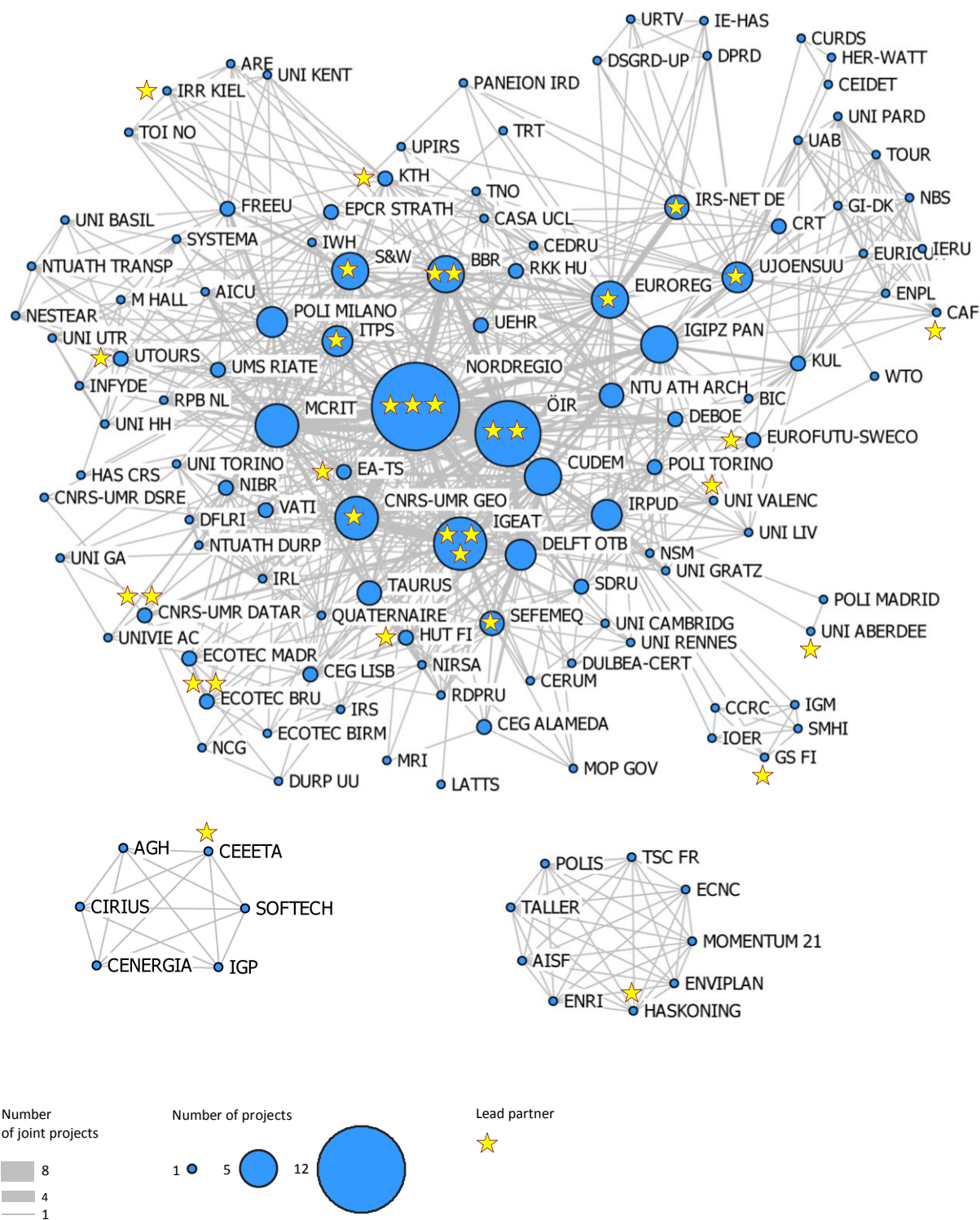


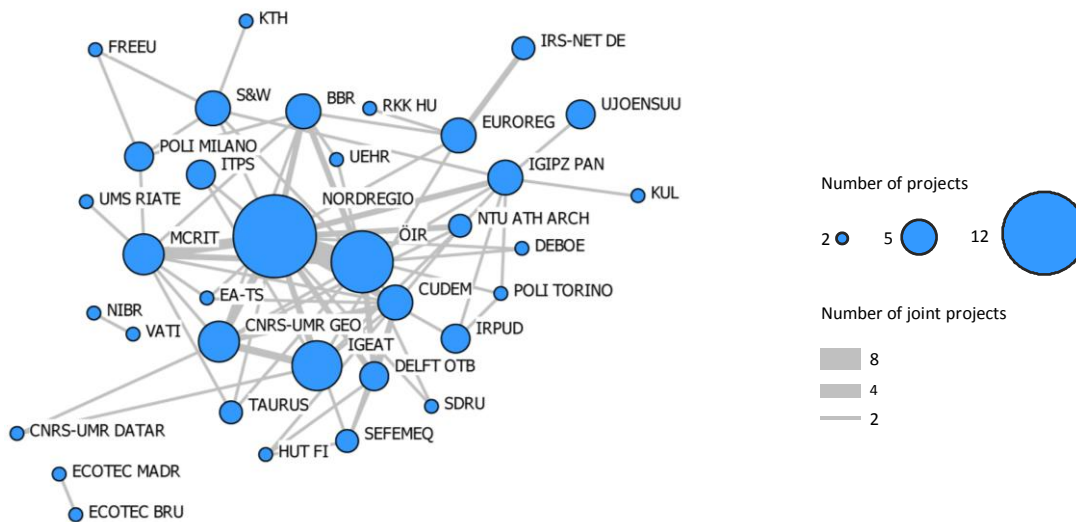
Fig. 2. Network of cooperation in ESPON projects (all institutions)⁶



Source: prepared by the authors.

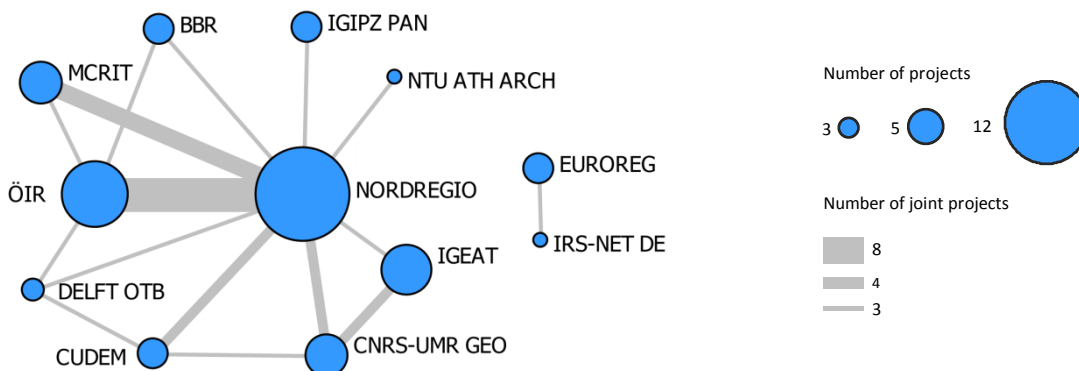
⁶ For a list of acronyms, see annex I.

Fig. 3. Network of cooperation in ESPON projects (institutions mutually cooperating in at least two projects)



Source: prepared by the authors.

Fig. 4. Network of cooperation in ESPON projects (institutions mutually cooperating in at least three projects)

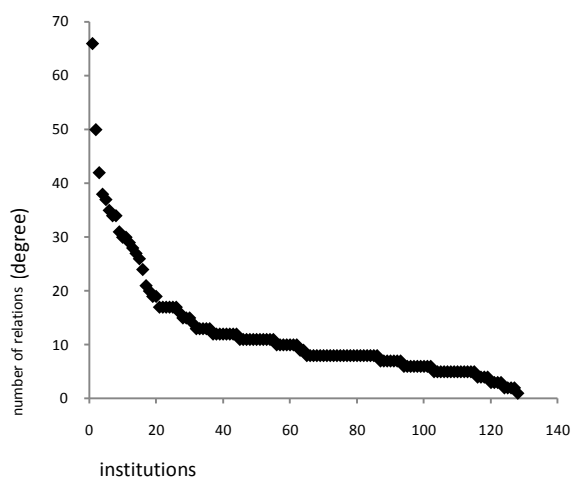


Source: prepared by the authors.

Particular institutions vary in terms of the number of other institutions they cooperated with as part of ESPON projects. The scope of cooperation expressed by the number of relations with other institutions is resulting from the number of projects, in which a given institution participated (correlation = 0.94). Therefore, it is not a surprise that the most extensive contact network is that of NORDREGIO – which cooperated with as many as 66 institutions, i.e. about half of all the institutions involved in ESPON projects(!). The second institution with the most extensive cooperation network is ÖIR (in this case the contact network is significantly smaller, amounting to 50 institutions). Detailed data for the most important institutions is presented in Table 1. The number of relations is also the simplest measure of (degree) centrality of the entity in the network (cf. Batorski 2008, p. 179). Greater involvement of a given institution in network relations (connections with a large number of nodes) means its greater centrality in and significance for the whole network. In the analysed case only a small portion of nodes have a large number of relationships (cf. Fig. 5). The special role of a few institutions most important for ESPON programme can be seen even more clearly if we take into account another measure of centrality, i.e. *betweenness*

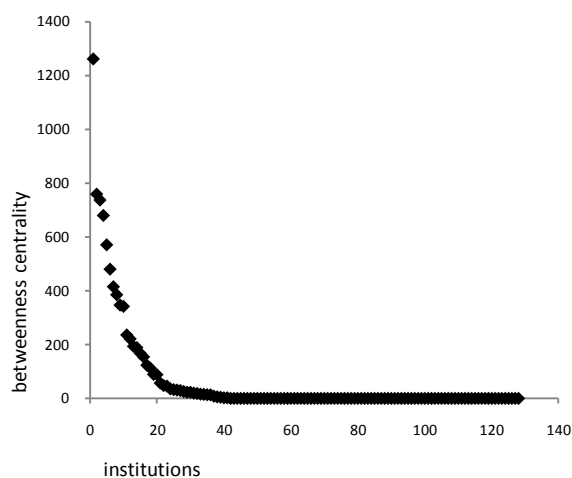
centrality. The measure pertains to frequency in which the entity occurs in the shortest paths between various pairs of nodes (Batorski 2008, p. 179). High value of *betweenness centrality* is usually interpreted as higher capacity of a given node to control the flow of information within the network. In the analysed case the betweenness centrality, similarly as the node degree, has high (0.89) level of correlation with the number of projects in which a given institution participated. The key institution in this case is again NORDREGIO. Moreover, according to this measure the dominance of the strongest institutions is more prominent than in the case of node degree (cf. Fig. 5 and 6). It should be emphasized that the situation is quite typical for networks of institutions participating in research programmes. Similar results for institutional network implementing projects within the 6th Framework Programme are demonstrated in Elena Besussi's study (2006).

Fig. 5. Node degree (degree centrality) of the institutions conducting ESPON projects



Source: prepared by the authors.

Fig. 6. Betweenness centrality of the institutions conducting the projects



Source: prepared by the authors.

SUMMARY

According to our analysis ESPON programme has a networking character, as expected. The institutions implementing the projects form a dense and closely cooperating network. However, the network is dominated by a couple of institutions, participating in the largest number of projects and having the most extensive cooperation networks. From the spatial perspective the Programme is clearly lacking research institutions from some Central and Eastern European countries (cf. Olechnicka, 2005).

The domination of some institutions (or, on other levels, research centres or countries) in the Programme may significantly affect the actual results of the projects. According to analyses, greater involvement of institutions from a given country results in more frequent presentation of that country (or its regions, cities, etc.) in case studies within particular projects. Moreover, considering the highly practical character of the analyses conducted within the Programme, as noted at the beginning of the paper (applying mostly to the opportunity of influencing political decisions at the EU level) greater presence in the Programme means greater ability to directly influence creation of the European spatial policy.

As a consequence, it should be stressed that the involvement of research centres from the new EU member states in ESPON programme is connected with the of research funding, participation in cooperation network, prestige, and also constitutes an important factor influencing perception of the spatial development perspective of these countries by the EU institutions. The conclusion is supported with the amount of factual and interpretative errors found during review of ESPON programme reports from the perspective of the new member states (Gorzalak, Olechnicka 2009). Analysis of the cooperation network

may constitute a basis for indicating effective methods of including the institutions from the Central and Eastern Europe in the ESPON Programme projects. The most successful method in this case is to establish direct contacts with institutions having significant experience within ESPON Programme, i.e. institutions with nodal function in the programme's scientific cooperation network. Successful instruments promoting direct contacts between institutions from the new member states and the nodal institutions include networking meetings and databases of potential project partners. The conclusion is particularly important for increasing effectiveness of the activities performed by the network of ESPON national contact points.

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ANNEX I. THE RESEARCH INSTITUTIONS IN ESPON 2000-2006 PROGRAMME

| ACRONYM | NAME | COUNTRY | CITY | PROJECTS |
|----------------|--|---------|--------------|----------|
| AGH | AGH, Wydział Paliw i Energii | PL | Kraków | 1 |
| AICU | Alexandru Ioan Cuza University, Dep. Of Geography | RO | Iasi | 1 |
| AISF | AISF – Forest Research | IT | Firenze | 1 |
| ARE | Federal Office for Spatial Development (ARE) | CH | Bern | 1 |
| BBR | Federal Office for Building and Regional Planning (BBR) | DE | Bonn | 5 |
| BIC | BIC Lazio S.p.A. | IT | Lazio | 1 |
| CAF | Università Ca' Foscari, Department of Economics (CAF) | IT | Venezia | 1 |
| CASA UCL | Centre for Advanced Spatial Analysis University College London | GB | London | 1 |
| CCRC | CCRC – Comissão de Coordenação da Região Centro | PT | Coimbra | 1 |
| CEDRU | Centre for Urban and Regional Development Studies, Ltd. (CEDRU) | PT | Lisbon | 1 |
| CEEETA | CEEETA | PT | Lisbon | 1 |
| CEG ALAMEDA | CEG Centro de Estudos Geograficos, Alameda da Universidade | PT | Alameda | 2 |
| CEG LISB | Centre for Geographical Studies (CEG), University of Lisbon, Faculdade de Letras, | PT | Lisbon | 2 |
| CEIDET | Universidade de Aveiro / University of Aveiro, CEIDET, Departamento de Ambiente e Ordenamento | PT | Aveiro | 1 |
| CENERGIA | Cenergia | DK | Herlev | 1 |
| CERUM | CERUM – Centre for Regional Science – Umea University | SE | Umea | 1 |
| CIRIUS | Cirius - Centro de Investigações Regionais e Urbanas | PT | Lisbon | 1 |
| CNRS-UMR DATAR | CNRS-UMR DATAR – Université Paris 7 | FR | Paris | 2 |
| CNRS-UMR DSRE | CNRS-UMR Dynamiques sociales et recomposition des espaces | FR | Paris | 1 |
| CNRS-UMR GEO | CNRS-UMR Géographie-cités | FR | Paris | 6 |
| CRT | CRT - Centre for Regional and Tourism Research | DK | Nexo | 2 |
| CUDEM | CUDEM, School of the Built Environment, Faculty of Arts and Society, | GB | Leeds | 5 |
| CURDS | Centre for Urban & Regional Studies (CURDS), University of Newcastle | GB | Newcastle | 1 |
| DEBOE | Philippe DeBoe Consultant | BE | Brussels | 2 |
| DELFT OTB | Delft University of Technology/ OTB Research Institute for Housing, Urban and Mobility Studies | NL | Delft | 4 |
| DFLRI | Danish Forest and Landscape Research Institute | DK | Hoersholm | 1 |
| DPRD | University of Thessaly, Department of Planning and Regional Development DPRD | GR | Thessaly | 1 |
| DSGRD-UP | Charles University in Prague, Department of Social Geography and Regional Development, Faculty of Science | CZ | Prague | 1 |
| DULBEA-CERT | DULBEA-CERT Université Libre de Bruxelles | BE | Brussels | 1 |
| DURP UU | Department of Social and Economic Geography - Umeå University | SE | Umea | 1 |
| EA-TS | European Agency Territories and Synergies (EA-TS) | FR | Strasbourg | 2 |
| ECNC | European Centre for Nature Conservation (ECNC) | NL | Tilburg | 1 |
| ECOTEC BIRM | ECOTEC - Research and Consulting Ltd. (Birmingham) | GB | Birmingham | 1 |
| ECOTEC BRU | ECOTEC - Research and Consulting Ltd. (Brussels) | BE | Brussels | 2 |
| ECOTEC MADR | ECOTEC - Research and Consulting Ltd. (Madrid) | ES | Madrid | 2 |
| ENPL | ENPL – University of Thessaly, Argonafton & Filellinon | GR | Thessaly | 1 |
| ENRI | Eastern Norway Research Institute | NO | Lillehammer | 1 |
| ENVIPLAN | ENVIPLAN | GR | Athens | 1 |
| EPCR STRATH | EPRC - European Policies Research Centre, University of Strathclyde | GB | Strathclyde | 2 |
| EURICUR | EURICUR – European Institute for Comparative Urban Research, Erasmus University Rotterdam | NL | Rotterdam | 1 |
| EUROFUTU-SWECO | EuroFutures Frederiksson& Partners AB | SE | Stockholm | 2 |
| EUROREG | EUROREG, Uniwersytet Warszawski | PL | Warsaw | 5 |
| FREEU | Free University of Amsterdam | NL | Amsterdam | 2 |
| GI-DK | GI-DK – University of Copenhagen | DK | Copenhagen | 1 |
| GS FI | Geologian Survey of Finland | FI | Espoo | 1 |
| HAS CRS | West Hungarian research Institute, Academy of Sciences (HAS CRS) | HU | Győr | 1 |
| HASKONING | Royal Haskoning | NL | Nijmegen | 1 |
| HER-WATT | School of the Built Environment, Heriot-Watt University, Edinburgh College of Art | GB | Edinburgh | 1 |
| HUT FI | Helsinki University of Technology - Centre for Urban and Regional Studies | FI | Helsinki | 2 |
| IE-HAS | Hungarian Academy of Sciences, Institute of Economics IE-HAS | HU | Budapest | 1 |
| IERU | IERU – Institute of Urban and Regional Studies, Universidade de Coimbra | PT | Coimbra | 1 |
| IGEAT | IGEAT - Institut de Gestion de l'environnement et d'aménagement du territoire, Free University of Brussels | BE | Brussels | 7 |
| IGIPZ PAN | Instytut Geografii i Przestrzennego Zagospodarowania PAN | PL | Warsaw | 5 |
| IGM | Instituto geologico e Mineiro (IGM) | PT | Porto | 1 |
| IGP | Instituto Geográfico Português - IGP | PT | Lisbon | 1 |
| INFYDE | INFYDE - Informaomacion y Desarrollo, S.L. | ES | Las Arenas | 1 |
| IOER | Institute of Ecological and Regional Development - IOER | DE | Dresden | 1 |
| IRL | Institute for Territorial Development and Landscape (IRL), Swiss Federal Institute of Technology | CH | Hoenggerberg | 1 |
| IRPUD | IRPUD - Institute of Spatial Planning, University Dortmund | DE | Dortmund | 4 |
| IRR KIEL | Christian-Albrechts-Universität zu Kiel, Institute of Regional Research | DE | Kiel | 1 |
| IRS | IRS-Institute for Social Research | IT | Milano | 1 |
| IRS-NET DE | Institute for Regional Development and Structural Planning | DE | Erkner | 3 |
| ITPS | Swedish Institute for Growth Policy Studies, ITPS | SE | Östersund | 4 |
| IWH | Institut fuer Wirtschaftsforschung (IWH), Department of Regional and Urban Economics | DE | Halle | 1 |
| KTH | The Royal Institute of Technology (KTH) | SE | Stockholm | 2 |
| KUL | KUL – Katholiek Universiteit Leuven | BE | Lueven | 2 |

| ACRONYM | NAME | COUNTRY | CITY | PROJECTS |
|---------------|--|---------|-----------------|----------|
| LATTS | LATTS - Laboratoire Techniques, Territoires, Sociétés à l'Ecole Nationale des Ponts et Chaussées | FR | Marne-la-Vallée | 1 |
| M HALL | Margaret Hall - Independent Consultant for GIS | LUX | Luxenburg | 1 |
| MCRIT | MCRIT | ES | Barcelona | 6 |
| MOMENTUM 21 | Momentum 21, Land Use Consultants | GB | London | 1 |
| MOP GOV | Ministry of Environment and Spatial Planning. Office for Spatial development | SI | Ljubljana | 1 |
| MRI | Metropolitan Research Institute MRI | HU | Budapest | 1 |
| NBS | NBS – Nottingham Business School, Department of Strategic Management and Marketing, | GB | Nottingham | 1 |
| NCG | National University of Ireland, Maynooth, The National Centre for Geocomputation | IE | Maynooth | 1 |
| NESTEAR | NESTEAR | FR | Gentilly | 1 |
| NIBR | Norwegian Institute for Urban and Regional Research (NIBR) | NO | Oslo | 2 |
| NIRSA | National Institute for Regional and Spatial Analysis (NIRSA), NUI Maynooth | IE | Maynooth | 1 |
| NORDREGIO | Nordregio | SE | Stockholm | 12 |
| NSM | Nijmegen School of Management | NL | Nijmegen | 1 |
| NTU ATH ARCH | National Technical University of Athens, School of Architecture, Department of Urban and Regional Planning | GR | Athens | 3 |
| NTUATH DURP | Department of Urban and Regional Planning at the National Technical University of Athens | GR | Athens | 1 |
| NTUATH TRANSP | National Technical University of Athens, Department of Transportation, Planning and Engineering | GR | Athens | 1 |
| ÖIR | Austrian Institute for Regional Studies and Spatial Planning (ÖIR) | AT | Vienna | 9 |
| PANEION IRD | Institute of Regional Development | GR | Athens | 1 |
| POLI MADRID | Universidad Politécnica de Madrid - Departamento de Economía y Ciencias Sociales Agrarias | ES | Madrid | 1 |
| POLI MILANO | Politecnico di Milano | IT | Milano | 4 |
| POLI TORINO | Politecnico di Torino | IT | Torino | 2 |
| POLIS | Polis University Genova | IT | Genova | 1 |
| QUATERNAIRE | Quatenaire, Porto | PT | Porto | 1 |
| RDPRU | Regional Development and Policy Research Unit (RDPRU), University of Macedonia | GR | Thessaly | 1 |
| RKK HU | Centre for Regional Studies of the Hungarian Academy of Sciences | HU | Pecs | 2 |
| RPB NL | The Netherlands Institute for Spatial Research | NL | Den Haag | 1 |
| S&W | Spiekermann & Wegener, Urban and Regional Research (S&W), Dortmund | DE | Dortmund | 5 |
| SDRU | SDRU - Aristotle University of Thessaloniki | GR | Thessaly | 2 |
| SEFEMEQ | Faculty of Economics (Sefemeq), Università Degli Studi di Roma Tor Vergata | IT | Rome | 3 |
| SMHI | Swedish Meteorological and Hydrological Institute - SMHI | SE | Norrköping | 1 |
| SOFTTECH | Softtech. S.r.l. | IT | Bologna | 1 |
| SYSTEMA | SYSTEMA - Systems Planning & Management Consultants SA | GR | Athens | 1 |
| TALLER | Taller de Ideas Centro de Estudios Urbanos S.L. | ES | Madrid | 1 |
| TAURUS | The TAURUS Institute at the University of Trier (TAURUS) | DE | Trier | 3 |
| TNO | TNO Inro | NL | Delft | 1 |
| TOI NO | Institute of Transport Economics | NO | Oslo | 1 |
| TOUR | TOUR – Ernst-Moritz-Arndt Universität, Institut für Geographie und Geologie | DE | Greifswald | 1 |
| TRT | TRT - Transportation and Territory S.r.l. | IT | Milano | 1 |
| TSC FR | Territoires Sites et Cites | FR | Lumbres | 1 |
| UAB | UAB – Universitat Autònoma de Barcelona, Departament de Geografia | ES | Barcelona | 1 |
| UEHR | Institute of Urban Environment and Human Resources (UEHR), Panteion University | GR | Athens | 2 |
| UJOENSUU | University of Joensuu | FI | Joensuu | 4 |
| UMS RIATE | UMS RIATE, Université Paris7 – UFR GHSS | FR | Paris | 2 |
| UNI ABERDEE | University of Aberdeen - Arkleton Centre for Rural Development Research | GB | Aberdeen | 1 |
| UNI BASIL | University of Basilicata | IT | Potenza | 1 |
| UNI CAMBRIDG | University of Cambridge, Department of Geography | GB | Cambridge | 1 |
| UNI GA | Università G.d'Annunzio, Dipartimento di Economia e Storia del Territorio | IT | Pescara | 1 |
| UNI GRATZ | University of Graz- Institut für Geographie und Raumforschung | AT | Graz | 1 |
| UNI HH | University of Hamburg-Harburg, Working Group on City, Regional and Environmental Planning, | DE | Hamburg | 1 |
| UNI KENT | University of Kent,Department of Economics, Keynes College | GB | Kent | 1 |
| UNI LIV | University of Liverpool | GB | Liverpool | 1 |
| UNI PARD | University of Pardubice, Faculty of Economics and Administration | CZ | Pardubice | 1 |
| UNI RENNES | University of Rennes 1, Faculté des Sciences économiques | FR | Rennes | 1 |
| UNI TORINO | Università di Torino – Dipartimento Interateneo Territorio | IT | Torino | 1 |
| UNI UTR | University of Utrecht, Faculty of Geographical Sciences, Dept. of Urban and Regional Planning | NL | Utrecht | 1 |
| UNI VALENC | University of Valencia, Department of Geography | ES | Valencia | 1 |
| UNIVIE AC | Institute for Geography and Regional Research – University of Vienna | AT | Vienna | 1 |
| UPIRS | Urban Planning Institute of the Republic of Slovenia - UPIRS | SI | Ljubljana | 1 |
| URTV | University of Rome “Tor Vergata” URTV, Department of Economics and Institutions, Faculty of Economics | IT | Rome | 1 |
| UTOURS | University of Tours | FR | Tours | 2 |
| VATI | VÁTI, Hungarian Public Nonprofit Company for Regional Development and Town Planning | HU | Budapest | 2 |
| WTO | WTO - World Tourism Organization | ES | Madrid | 1 |

Source: prepared by the authors.