

# Quality and Quantity in the Strategic Network of Higher Education Institutions

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**Abstract**—This study analyzes the quality and the size of the strategic network of higher education institutions. The study analyses the concept of fitness for purpose in quality assurance. It also analyses the transaction costs of networking that have consequences on the number of members in the network. Empirical evidence is presented of the Consortium on Applied Research and Professional Education, which is a European strategic network of six higher education institutions. The results of the study support the argument that the number of members in the strategic network should be relatively small to provide high quality results. The practical importance is that networking has been able to promote international research and development projects. The results of this study are important for those who want to design and improve international networks in higher education.

**Keywords**—Higher education, network, research and development, strategic management.

## I. INTRODUCTION

EUROPEAN UNION has been generous in providing funding for research and development projects of higher education institutions. Also student and staff exchange have obtained support to improve the economic and social cohesion in the common European market. The external funding is an opportunity and a motivating factor especially in higher education institutions which have experienced budget cuts from central governments. Following the European and national education policies, higher education institutions have defined strategic objectives to increase the amount of external funding and develop their processes and structures. Joint research and development projects provide access to new knowledge, skills, technologies and markets by integrating complementary competencies and sharing risks [1].

An important question in higher education management is related to the best structure to achieve the objective of increased external funding. International strategic networks have become important to improve the collaboration of European countries because European Union presumes partners from several European countries. Occasional collaborative projects led thoughts at the Turku University of Applied Sciences and the HU University of Applied Sciences Utrecht to plan deeper and permanent structure for the collaboration. The establishment of the Consortium on Applied Research and Professional Education (CARPE) was a remarkable step to promote the collaboration of higher education institutions and support the companies and other

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organizations in the European common market.

The social networks of students, teachers and other staff raise the ability of partners to interact in resolving shared problems [2]. The networks can be used to pool complementary skills, access external knowledge and accelerate product development [3]. They are also useful in earlier and closer customer interaction in developing services and products [4]. Strategic alliances are expected to improve competitive advantage [5]. The experiences of business companies indeed show that strategic alliances lead to positive returns [6]. There are also results that networks make positive contributions to innovation [7]-[9].

An open strategic network provides opportunities for external actor involvement in research and development projects. The partners from diversity of backgrounds are able to meet and collectively solve complex problems in the network [10], [11]. The members of the joint projects are able to utilize the discoveries of others and pass on internally developed knowledge to others. Open networks evolve over time, because partners are free to enter and leave the projects of research and development [12].

The purpose of this study is to analyze the quality and the number of members of the strategic network in higher education. Fitness for purpose is an important quality concept which can be assessed against the missions of higher education institutions and objectives set by the network. Value for money is another relevant quality concept because European Union is the body which is supposed to pay for the service that higher education institutions produce. The study also analyses the transaction costs of networking, because the costs can be lowered by a trustworthy network and pecuniary subsidies.

The empirical part of the study is based on the survey made to the participants of the CARPE Conference arranged in Turku in May 2015. The respondents of the survey were asked about the feedback of the network. The results show that the open network with a small number of institutions has generally been very successful in its activities, but it also shows some steps to be taken especially in the number of projects that the members have in the network.

The remainder of this paper is set up as follows. Section II includes the literature review, which introduces the quality of networking and especially the concept of fitness for purpose. It also presents the optimal amount of members which is based on the equilibrium of the demand for and the supply of networking. Section III describes the data and methodology and presents the European strategic network CARPE and the data collected from the participants of the network conference.

The results and discussion in Section IV present the empirical results of the feedback from the respondents about the network. Section VI offers final comments.

## II. LITERATURE REVIEW

### A. Quality of Networking

Harvey and Green [13] defined the concept of “fitness for purpose” in quality assurance as fulfilling customer’s requirements, needs and desires. They also noted that theoretically the customer specifies requirements, but in education, fitness for purpose is usually based on the ability of an institution to fulfil its mission or a program of study to fulfil its aims. Harvey and Green [13] also note that quality is often equated with value-for-money and that government has forged a close link between the quality of education and value for money. Governments are paying customers and they specify what customers can expect for the money they pay.

Woodhouse [14] noted that fitness for purpose is a definition of quality that allows institutions to define their purpose in their mission and objectives so that quality is demonstrated by achieving these. The mission of a higher education institution is typically defined in legislation and the objectives are defined by the performance-based funding schemes, which have decreased autonomy and the importance of strategic management in higher education [15]. They, however, leave some variability between institutions, their organizational units and degree programs, rather than to be the clones of one another. This definition of quality leaves room for strategic management and allows the institutions and their strategic business units to define their objectives that they are trying to achieve.

Fitness for purpose can also be defined as the conformity to sectoral standards as referred by Vlăsceanu et al. [16]. The standards can be defined by a quality assurance agency focusing on the efficiency of the processes in fulfilling the mission and achieving the objectives. Quality can in this sense be labelled as a value for money referring to the efficient use of inputs or value-added approach where results are evaluated in terms of changes obtained by processes. In the case of the strategic network the European Union has defined the standards and regulations of research and development programs. Therefore, fitness for purpose can be based on the ability of the network to achieve its aims regulated by the funding body.

The weakness of the concept of fitness for purpose is that in large and diverse higher education institutions and the collaborative networks of various institutions a wide range of purposes may be identified by their mission statements and strategic objectives. This is further complicated in collaborative international research and education where institutions come from many countries and represent diverse educational systems based on their national education policy. In such an international collaboration, the networks are able to define their joint missions and objectives that fit to the institutional purposes.

In the case of the strategic network, the concept of the

fitness of purpose raises the issue of whose purpose is relevant and how the fitness is assessed. In higher education, the student cannot be considered a customer because the student is not in a position to specify the customer requirements. That leaves the responsibility to define the mission and objectives for those who pay for the service. The quality of an international strategic network can be assessed against the self-declared objectives which are aligned with the objectives of the paying customer.

### B. Quantity of Networking

European Union has defined political objectives how to strengthen the economic and social cohesion in European higher education. Harmonization of education policy is one of the vague common purposes in the Bologna Process, but it has not led to uniform education policy and systems in Europe. European Union has power to pay for the achievement of some common objectives it defines in its programs. The student and staff exchange are the traditional ways of internalization and support the joint research and development projects. One important prerequisite is that the partners of research and development projects come from various European countries. The higher education institutions are coping with these requirements in networked collaboration.

The basic economic principle of networking is that it is not free of charge, but it has a price determined by the costs that each networking partner pays. Trust is an essential element in reducing transaction costs [17], [18]. Trusting people make a low investment in monitoring and enforcing the compliance of the partners with whom the contract is made [19]. The transaction costs are also related to travel, accommodation and time used to promote networking. These costs depend on the distance of collaborative partners, the price level of country and language barriers among other things. Based on these costs each higher education institution evaluates the benefits they receive from networked collaboration.

Fig. 1 depicts the demand for and supply of networking. When the transaction costs of networking are high, the demand for networking and the number of networked institutions is low. The networking is more beneficial and the demand for networking tend to increase when the costs of networking decrease. Networking favors partners which have close and affordable relationships and low transaction costs.

The supply of networking increases, when networking provides better revenue. When better revenue become available, new networks are planned and agreed to achieve the income provided by those who pay for the services. Then more partners become involved in the networked collaboration. On the other hand, the existing networks tend to increase the number of partners in their network to earn from the improved benefits of networking.

When the price of networking is too low, the demand for networking is higher than the supply of networking and there is shortage of networking opportunities. When the price of networking is too high, the supply of networking is higher than the demand for networking and there is surplus of networking opportunities. When costs of networking are too

high, all the potential members are not willing to join the network. The equilibrium of networked higher education institution is achieved when the demand for networking is equal to the supply of networking. This equilibrium determines the equilibrium and quantity.

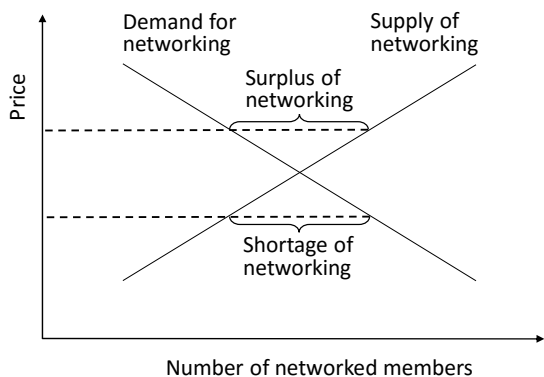


Fig. 1 The demand for and supply of networking

Fig. 2 depicts a positive shift in the demand for networking. When European Union supports student and staff exchange and research and development projects, the demand for networking has a positive shift and the number of institutions that are interested to become networked increase. The positive shift may also take place when the other related networks become passive, close their activities or become more expensive. That may be due to the changes in stipulations and national funding regulations that favor our international network. As a consequence, the number of our networked members increase and the costs of networking increase.

Fig. 3 depicts the situation where the supply of networking has a positive shift. If the other activities that networking become less attractive, the supply of networking has a positive shift. The positive shift may also take place if the input costs decrease. For example, if there is innovation in the technology so that online learning and teaching become more attractive, that may cause a positive shift in networking. Consequently, when there is a positive shift in networking in the market, the number of networked members increase and the costs of networking decrease.

### III. DATA AND METHODOLOGY

The strategic network is a coalition of important affiliates mentioned in the strategic plan of an institution or otherwise deemed important collaborators. Trust, transaction costs and the number of members in the network were discussed in the meetings when the CARPE network was planned. The representatives of the member institutions expected that high quality results with lower transaction costs can be achieved with trustworthy partners. Transactions entail to search partners for projects, negotiate with them and monitor their achievements. If partners can trust each other, they can significantly reduce the transaction costs and improve quality. Finally, the Steering Committee of CARPE decided that a network with a relatively small number of partners is the best solution for the strategic network.

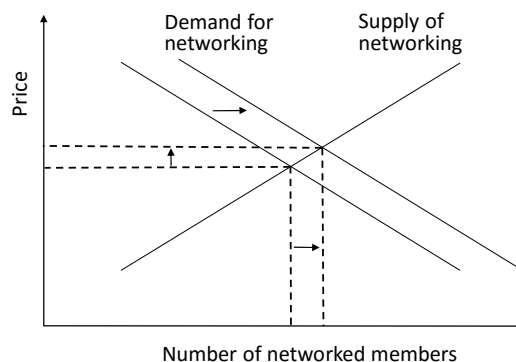


Fig. 2 The positive shift in the demand for networking

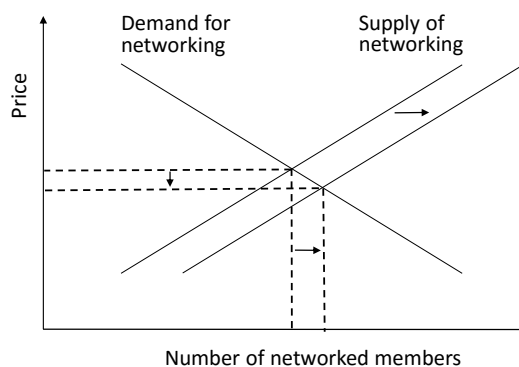


Fig. 3 The positive shift in the supply of networking

CARPE has the following higher education institutions as its members: 1) the HU University of Applied Sciences Utrecht (Hogeschool Utrecht), 2) the Turku University of Applied Sciences (Turun ammattikorkeakoulu), 3) the Polytechnic University of Valencia (Universitat Politècnica de València), 4) the Hamburg University of Applied Sciences (Hochschule für Angewandte Wissenschaften Hamburg), and the Manchester Metropolitan University. The University of Debrecen was accepted as an associate member in November 2014 [20].

The data for this study were collected in the CARPE Conference organized in Turku to promote the collaboration of higher education institutions. The first biennale CARPE Conference was organized in Utrecht in 2011 when the general agreement of the strategic network was signed. The second conference was arranged in Manchester in 2013. The third CARPE Conference was arranged in Turku in May 2015. An innovative feature of these conferences is that not only that scientific papers are presented but the speakers present new ideas of research and development projects and invite partners for the projects.

The sessions of the conference included over 60 presentations and workshops. Also many meetings of research and development projects and support services were arranged during the conference. The themes of the parallel sessions were: 1) sustainability and technology, 2) inclusive, innovative and reflective societies, 3) health and wellbeing, 4) European entrepreneurship, 5) excellent management and governance in higher education, 6) applied research methods, and 7) teaching and learning excellence and innovation.

The participants of the conference were asked about the feedback about the CARPE network with an online survey. The questionnaire was sent to all the 222 participants just after the end of the conference. The survey was open 23 days and remainder was sent to increase the number of answers one week after the first call. Finally, 66 people answered the questions that led to the satisfactory response rate of 30%. About 33% of the answers were from the Turku University of Applied Sciences, 28% from the HU University of Applied Sciences Utrecht, 18% from the Manchester Metropolitan University, 7% from the Polytechnic University of Valencia and 2% from the University of Debrecen.

This study connects the theoretical concepts of quality assurance to the empirical survey and selects relevant tools and procedures as the coherent whole following the overall methodological outlines presented by Bryman and Bell [21] and Punch [22]. This is a case study of a selected network and hence it follows the methodology of a case study presented by Yin [23]. The study involves a survey about the perceptions of respondents about the quality of the network. This study investigates the subjective understanding and perceptions of respondents about the quality of the network using the data of the survey.

#### IV. RESULTS AND DISCUSSION

Table I depicts the importance of the strategic network evaluated by the participants of the CARPE Conference. The overall question was how the participants felt about the CARPE network in general and the overall question was specified with various detailed questions. The respondents answered these questions on the scale ranging from one to seven where number one represents the positive end of the scale and number seven the negative end of the scale.

According to most respondents, the CARPE network is

effective. About 70% of the respondents were on the positive side of the scale and 17% had a neutral opinion. About 61% of the respondents hoped that the number of CARPE projects can be increased, but 36% of them were satisfied with the existing amount of projects. Most of the CARPE projects are research and development project, but the minority of the projects are on the development of education or administration.

About 59% of the respondents had clearly gained from the CARPE network, because they were on the positive side of the scale and 26% were in the middle of the scale. Only 44% of the respondents were on the positive side of the scale when they were asked about how well they know each other in the conference. The results show that there is still room for improvement in this respect, because the participants did not know each other very well. This finding supports the argument that get-together parties and other social programs are important for participants to learn to know each other.

About 62% of the respondents were on the positive side of the scale when they were asked about how professional the CARPE network is. They also responded that colleagues came from a very wide field of expertise, because nearly 88% of the respondents answered positively to the question. That supports the argument that various parallel sessions that have specific themes are important to gather people to collaborative groups.

About 91% of the participants had a positive feeling about the CARPE network and 77% of them thought that the network is a success. The results of this survey clearly show that the network was successful, because most of the responses were on the positive side of the scale. The results support the argument that improvements can be made in the social programs and communication so that people learn to know their interest area and can look for partners in the future projects.

TABLE I  
 RESULTS OF THE SURVEY QUESTION: HOW DO YOU FEEL ABOUT THE CARPE NETWORK IN GENERAL? 1=Yes, 7=No

	1	2	3	4	5	6	7	Average
Network is effective	6.1	25.8	37.9	16.7	7.6	4.6	1.5	3.1
There are too few CARPE projects	6.1	21.2	33.3	36.4	1.5	1.5	0	3.1
I have gained from the CARPE network	7.6	22.7	28.8	25.8	4.6	9.1	1.5	3.3
I know numerous people from other CARPE institutions	7.6	16.7	19.7	30.3	18.2	6.1	1.5	3.6
Network is very professional	3.0	33.3	25.8	22.7	6.1	7.6	1.5	3.2
Colleagues come from a very wide field of expertise	13.6	53.0	21.2	4.6	3.0	4.6	0	2.4
I have a positive feeling about the network	27.3	42.4	21.2	3.0	1.5	3.0	1.5	2.2
Network is a success	10.6	33.3	33.3	15.2	3.0	3.0	1.5	2.8

The results of the survey show that the opinions of participants generally indicate positive feelings about the network, but the network has room for improvement. The number of joint research and development and educational projects can be increased. The notion that colleagues come from the very wide fields of education is a future challenge for the communication so that collaboration can be improved. The diversity of backgrounds can also be considered as an advantage, because applied research and development projects require multidisciplinary project groups.

The regional development needs do not usually follow the limits of degree programs or subjects taught in higher education institutions. The multidisciplinary development needs support the argument that colleagues in the research and development projects come from a wide field of expertise and combine their knowledge and skills to achieve the aims of the project. The diverse backgrounds of people may be challenging because they may not easily find common interests, but on the other hand, it can be expected that new innovations emerge as the result of multidisciplinary activities.

## V. CONCLUSIONS

The purpose of this study was to analyze the quality and the number of members of the strategic network in the case where networking is a prerequisite for achieving external income for research and development and promoting student and staff exchange in European higher education. Quality assurance in higher education concerns not only higher education institutions but also their stakeholders such as the strategic networks. The transaction costs and benefits of networking are important when an institution is determining the amount of networking institutions.

This study analyzed the literature on fitness for purpose in quality assurance and the number of partners in a network using the transaction costs and benefits of networking. The empirical part of the study analyzed CARPE network, which is a strategic network of six European higher education institutions. Feedback was collected from the participants of the CARPE Conference about the functioning and success of the network.

The results of the survey indicate that CARPE network is effective, professional and successful. The respondents had gained from the network and they had a positive feeling about it. The respondents hope to increase the number of CARPE projects. They did not know enough people from other CARPE institutions, which supports the argument that more communication and face-to-face meetings are necessary to activate the collaboration. The respondents also noted that colleagues come from very wide fields of expertise.

This study was about the members of CARPE network, which are mainly universities of applied sciences. Therefore, the results of this study cannot be generalized to traditional research universities and other networks. It should also be noted that universities of applied sciences have a regional orientation and they have applied research and development and therefore the results of research universities can be different. A challenge and a fruitful topic for further study is to analyze the networks of traditional research universities.

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