



Federal Ministry  
of Economics  
and Technology

 **Kompetenznetze** Deutschland  
networking for innovation



Innovation Policy, Information Society, Telecommunications

# Internationalisation of Networks Barriers and Enablers

Study: empirical analysis of selected European networks

[www.bmwi.de](http://www.bmwi.de)

**The Authors**

Dr. Gerd Meier zu Köcker  
Claudia Martina Buhl  
VDI/VDE Innovation + Technik GmbH (VDI/VDE-IT)  
[www.vdivde-it.de](http://www.vdivde-it.de)

This study is part of a series of publications  
issued by the office of the Initiative  
Kompetenznetze Deutschland  
c/o VDI/VDE Innovation + Technik GmbH  
Steinplatz 1  
10623 Berlin  
Germany  
Tel.: +49 (0) 30 310078-219  
Fax.: +49 (0) 30 310078-222  
[kompetenznetze@vdivde-it.de](mailto:kompetenznetze@vdivde-it.de)

**Layout**

André E. Zeich, VDI/VDE-IT

**Translation**

Karsten Balgar, VDI/VDE-IT

**Print**

Druckerei Feller, Teltow

**Publisher**

Federal Ministry of Economics and Technology  
Department Public Relations  
Scharnhorststr. 34-37  
10115 Berlin  
Germany  
[www.bmwi.de](http://www.bmwi.de)

**Status**

September 2007



Federal Ministry  
of Economics  
and Technology



**Kompetenznetze Deutschland**  
networking for innovation

Innovation Policy, Information Society, Telecommunications

# **Internationalisation of Networks**

## **Barriers and Enablers**

Study: empirical analysis of selected European networks

[www.bmwi.de](http://www.bmwi.de)



# Content

Summary .....	4
Introduction .....	6
Networks as Instruments of internationalisation .....	7
Internationalisation Aspects from the Point of View of Innovation and Funding Policy .....	8
Aim and Method of the Study .....	9
Current State and Perspective of the Interviewed Networks' Internationalisation Activities .....	11
Conclusion .....	17
Appendix I: Information on the Interviewed Networks .....	20
Categories of Networks' Internationalisation .....	23
The Initiative Networks of Competence Germany .....	24
Recommended Literature .....	25

## Summary

In the current state of ever-changing political, economic, technological and social conditions, companies are more and more confronted with the imperative of adjusting their own business strategies to the altered circumstances. The knowledge a company needs, the technologies it utilises, and consequently its manufactured products and services tend to specialise increasingly. As a result, the joining of forces of complementary companies and institutions (like institutions of research or education with service providers) is of growing importance. The co-operation of companies acting collectively in networks represents an answer to the actual challenges of global competition. The collective and goal-oriented co-operation of different actors of the value-added chain allows for innovations with great value-creation potential to be generated faster and more efficiently, therefore bringing regional advantages to bear.

Nevertheless, solely concentrating upon a national market in economic, technological or research matters is simply not enough anymore – both for companies and for networks. Networks have to co-operate ignoring regional and national boundaries, develop their own strategies for internationalisation, and pursue these strategies persistently to keep and expand their share on the market as globalisation progresses.

Since internationalisation of networks and co-operation is regarded an important subject on the agenda of innovation policy, currently a lot of measures for the support of networks are being discussed and implemented in this context. Still, the position of networks themselves concerning this topic has not been examined sufficiently. Only if the current situation, specific needs, and goals of this target group are well understood, appropriate political measures can be designed and realised effectively. For this empirical study altogether 91 networks from 10 European countries have been interviewed, for the most part represented by their network managers, to improve the understanding of needs, strategies, enablers, and barriers of networks concerning their actual or intended paths towards globalisation.

For a lot of networks their reasons for going international can primarily be attributed to its expected contribution to keep the lead in technological development and to strengthen their own position on markets worldwide. Furthermore, the expectation to improve the access to identified target markets, to more easily and efficiently take advantage of the co-operation is a common motive. In case a network lacks some important competences internally, the primary objective of taking part in international co-operation is to obtain the missing know-how on usability or technology. This becomes especially important if networks are active in areas with broad technological character.

Although all interviewed networks express their motivation to adjust to an international orientation and engage in transnational co-operations in the future, just 10% of them could specify concrete strategies and plans on how to realise their internationalisation efforts in practice. The majority of the networks interviewed had – if at all - vague ideas by which means the network and its members could adjust to a more international focus (altogether nearly 75% of the questioned networks).

One of the greatest barriers to international co-operations is the prevalent lack of mutual trust between business partners. In addition, quite often rivalling companies are part of the networks willing to engage, making co-operations harder or possibly leading to conflicting interests – at least in the beginning.

The lack of time and resources or financial aspects were other reasons often mentioned as barriers. Hence, it is to be concluded that e.g. by external funding alone just a small contribution can be made by externals to abolish barriers of this type. Other obstructions identified like a lack in specification of co-operation projects, spatial distance and language barriers are just minor factors with each being named in less than 10% of the cases.

Results of the survey show the persistent great demand to adjust to an international orientation. But it will also become clear that conventional supporting instruments of grant policy cannot meet the

real needs of networks because the specific problems, requirements and measures applied are not taken into account. Customised supporting measures and tools have to be realised to provide support both more effective and more efficient for networks and their members on their paths towards internationalisation.

## Introduction

From the 1980s onward, companies worldwide saw themselves confronted with the necessity of adapting both their business strategies and their value-creation to the changed conditions of a shifting political, economic, technological and social framework, so they could keep and improve their competitiveness in order to ensure their turnover and profit. One promising method to realise this goal is a more international orientation<sup>1</sup> of economic subjects.

Yet the old – and very successful – strategy of export, which was almost exclusively concentrated upon by a major part of companies acting on the international economic stage, will not be enough to keep up with, and react appropriately to the altered terms anymore. Internationalisation respectively internationalisation efforts rather have to be regarded as a dynamic process which is being affected by a large number of measures from the sector of economic policy. Amongst others the scope of activities can imply, depending on the aim [sales market, expense, profit, research or resource dominating]:

- ▶ Expansion of the company's export business, representing the easiest and quickest possibility of entry onto the international market
- ▶ Reduction of vertical range of manufacturing and increased import of (primary) products, components and services in the context of a globally oriented supply-management<sup>2</sup>
- ▶ Increase the outsourcing of elements of the value-creation process to company-owned respectively co-operating foreign companies
- ▶ Grant licences to foreign companies: not to put own products, technologies, patents respectively trademarks on the international market themselves, but transfer them to partners for royalties.

- ▶ Participate in foreign companies by forming joint ventures
- ▶ Take over or establish production facilities in foreign countries to ensure that advantage of the economic potential of the companies' know-how is taken of exhaustively and on the other hand to achieve an ideal adjustment of own production to the local markets by faster product adaptation, quicker reaction to changes in demands, etc.
- ▶ Collective transnational R&D activities and co-operations

In the course of globalisation and the consequential overcoming of national boundaries, furthermore also as an effect of the eventual stagnation of domestic markets, the previous internationalisation of business partners and clients as well as the entry of foreign companies and corporations onto the domestic market, companies of all sizes are forced to compete on an international level in order to stay competitive and fit for the future on converging markets.

Still there are great differences in the stages of development in the context of internationalisation depending upon the size of the companies: large enterprises have advanced much more in this sector compared to medium-sized businesses. While only approximately 35% of European small enterprises are internationalised, approximately 60%<sup>3</sup> of medium-sized enterprises are (at 30% the most common form is contact to foreign suppliers, the second being export at 18%, while just 3% of European SMEs have foreign subsidiaries).

Reasons for small and medium-sized enterprises' (SMEs) internationalisation deficits compared to large enterprises are to be found in the following shortages characteristic for SMEs:

<sup>1</sup> Remark: Further information on forced internationalisation of SMEs:

1. European Commission/European Network for SME Research ENSR: Internationalisierung von KMU, Beobachtungsnetz der europäischen KMU, 2003, Nr.3

2. European Commission/European Network for SMEs Research ENSR: KMU und Kooperation, Beobachtungsnetz der europäischen KMU, 2003, Nr.5

3. Dieter Ahlert, Josef Hesse, Phillip Kruse (Publishers): Internationale Markenführung in Dienstleistungsnetzwerken – Internationalisierung von KMU: Bericht zum ersten Projektabschnitt des Teilprojektes „Schäper“

<sup>2</sup> See Kühlmann, Torsten (Research association Transnationale Netzwerke)

<sup>3</sup> Source: ENSR Enterprise Survey 2003

- ▶ Lack of equity capital
- ▶ Problems raising credits for international activities
- ▶ Absence of employees with international experience
- ▶ Deficit of information on foreign markets
- ▶ Poorly developed corporate planning
- ▶ Willingness to keep corporate independency<sup>4</sup>

These restrictions make it hard for a lot of SMEs to increase their involvement in internationalisation and to adapt forms of internationalisation other than the expansion of their corporate export strategy.

One possible conclusion would be for different economic subjects to collectively act as part of inter-corporate networks and to consequently push forward collective internationalisation ambitions. Therefore it is to be analysed how European networks support their member enterprises' internationalisation, which strategies are chosen, in which way network managers influence internationalisation efforts, and finally it is to be analysed which barriers exist for the internationalisation of companies.

### Networks as Instruments of Internationalisation

Experience has taught that international co-operations between companies can be encouraged if the involved companies are part of a network and the networks' managers take active steps to support their members in the context of a more internationally orientated perspective. Most of all this concerns regional networks which utilise local advantages provided by the surrounding metropolitan areas to a varying extent. These advantages agglomerations hold can be either sectoral effects in the wake of horizontal or vertical cross linking of companies or simply the infrastructure a region provides<sup>5</sup>.

There are numerous examples which show that the consequent orientation of regional networks (e.g. Minalogic, BioValley or Medicon Valley) towards an international perspective in combination with a network management specialised in this field of expertise lead to easier and more successful access onto foreign markets than it would have been possible without network support. This is no surprise since network managements usually have more resources at their disposal and are more experienced in internationalisation matters.

Networks can be of great use to many companies concerning their internationalisation ambitions. One reason for that lies in the reduction of internationalisation costs for the analysis of the intended future area of application, furthermore, the collective use of resources like distribution channels, suppliers and capacity of transportation becomes possible. Another important aspect is the momentum of dividing responsibilities and work within networks and the subsequent company's concentration onto corporate core products respectively services. Even more, as a result of co-operation a networks' allied companies can not only offer advanced or innovative products or services, but can provide full-scale system solutions if the network as a whole is involved into the internationalisation process.

Taking a closer look at services networks offer their members, support of internationalisation appears on top of the agenda. Hence, it becomes evident that this competence is an important criterion for networks from a member company's point of view. Many interviews with companies and network managers showed the growing demands companies pose to the management of their network to get concrete support benefits for their internationalisation efforts.

Members expect the networks' managers to realise goal-oriented and efficient measures fulfilling their client's specific needs. Established conventional methods alone, like business trips to foreign countries, matching by business development agencies or Chambers of Commerce or similar activities seem to

<sup>4</sup> Source: ENSR Enterprise Survey 2003

Kühlmann, Torsten: Selbstorganisation im Dschungel der Weltmärkte: Der Mittelstand spinnt Unternehmensnetzwerke, 2006

<sup>5</sup> Makinsky, A.H., 1999

be increasingly insufficient nowadays. Members themselves often lack a distinctly defined strategic approach on how to capture the target markets. Network managers are called for to design appropriate internationalisation strategies and to back them up with concrete measures on short-term. If network managements are able to meet such expectations and realise them successfully there is a clearly communicable benefit for members, often strengthening the affected member's long-term motivation and participation within the network.

The transnational collaboration of entire networks with other networks represents a form of network-specific internationalisation, in particular leading to the development of competitive, dynamic economy-, research- and technology-based agglomeration areas. Networks and even more the involved companies benefit from the rapid transnational transfer of both information and knowledge and from mutual technological improvement. They become able to formulate standards for innovations within development co-operations respectively promote the cross-national harmonisation of standards. These standards can serve as amplifiers for further innovations, since open standards are becoming localised, finally leading to new products and services. Yet the necessity of a more international adjustment in order to keep up with global competition in the long-term is unquestioned. It still remains difficult to identify critical factors for a successful internationalisation of networks. This territory remains largely unexplored, especially in the European context.

### Internationalisation Aspects from the Point of View of Innovation and Funding Policy

As a result of an advancingly liberalised world economy opening up national markets, companies, regions, and entire economic systems are facing an increasingly fierce situation of international competition. In particular SMEs, at 90% the by far largest group of economic subjects (e.g. FRG: 3.3 million SMEs, Czech: 1 million SMEs), are forced to make great efforts to adjust to the changing environment to stay in business in times of ongoing globalisation, even more taking into account the formerly explained factors like lack of equity capital, deficit of information on international economic regulations and the lack of competent employees.

Different subjects of the value-creation chain acting collectively in a network lowers the individual member's economic risk and allows for the raise of know-how potential, cost reduction, and most of all for the subsumption of the innovation level.

Based on the impact singular companies and networks have on the sustainability of national business locations, policy-makers have realised that both networks and the internationalisation of companies are two of most important aspects of national and international marketing of innovative regions. On the one hand this paves the way for relevant actors from other countries to become familiar with national economical environments and provides investment incentives, on the other it enables domestic subjects to be granted supportive measures with their internationalisation activities. Although they are country-specific, these measures to assist internationalisation efforts exist in nearly all European countries. Amongst other they reach from the provision of basic information, general promotion of exports (standardised provision of information) to company-specific measures like financial support (export credit/export guarantee), quality improvement programmes and the identification of business partners.

In addition to the various national support measures on a European level, initiated by the European Commission, different programmes and funding instruments exist to intensify internationalisation

efforts of companies and networks and networks' direct cross-linking, the most important programmes being ERA-NET (Support of transnational R&D-co-operation), PRO-INNO-EUROPE/Europe INNOVA (Development of cross-border initiatives to link networks and harmonise national network policies), INNET (support of transnational R&D-co-operations between selected networks and clusters) and the Innovation Relay Centres (EU-Verbindungsbüro für Forschung und Technologie).

Nevertheless, it is not enough to simply approve all kinds of internationalisation efforts companies and networks make. Moreover, supporting measures have to be formulated and addressed more specifically by means of prior identification and classification of existing primary structures, the applied sector, ambitions, sphere of action, aim and individual needs of networks and their members. Accordingly, the necessity for the following categorical distinction of the internationalisation process becomes evident:

- ▶ Networks already internationalised
- ▶ Networks with good internationalisation potential
- ▶ Networks with little potential for internationalisation

As explained before, there is a multitude of good examples for networks acting very successful on the international stage requiring no need for any further external help concerning their internationalisation strategies (see chapter: Networks as Instruments of Internationalisation). There are also lots of networks that in consequence of network age (e.g. embryonic networks), members (young companies with insufficient capital) or the area of application they are active in show little interest in or do not have sufficient potential for an international orientation at a particular moment. A premature shift of focus towards foreign markets or other forms of internationalisation could lead to the overstraining of the concerned network partners and possibly affect the future development of the network.

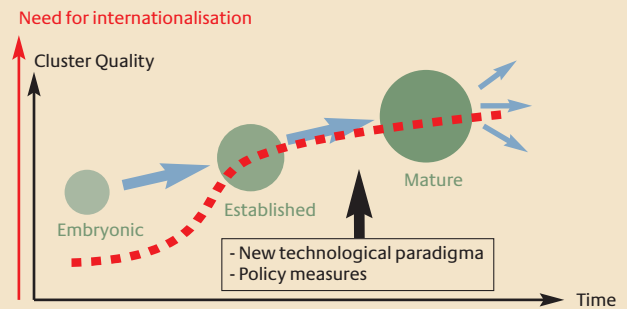


Figure 1: Importance of networks depending on their phase of development (simplified, schematic illustration without regard to other important determining factors)

A stronger support seems to be especially important for those networks and member companies with significant potential for internationalisation already having developed an own strategy for internationalisation, which yet rely on appropriate supporting measures for the implementation. Concerning the establishment of such adequate objectives, there is still need for further action in the sector of innovation and grant policy.

## Objectives and Methodology

This study aims at creating a better understanding for the needs, existing strategies, barriers and enablers referring to internationalisation of networks and their members. Only a better understanding of those matters will allow to develop and implement more tailor-made supporting measures than before. This study shall make a contribution to that issue.

Due to the fact that internationalisation of networks is regarded as a very important and actual innovation-policy topic and a lot of supporting measures are being discussed, respectively implemented at the moment, the question arises what opinion networks themselves hold on the topic. Appropriate publicly funded accompanying measures can be designed and realised effectively only if the initial position, needs and aims of the target group are sufficiently known and understood.

Altogether 91 network managers from ten European countries participated in this survey (see figure 2) and were available for further discussion. Most net-

works are based in France, Germany and Spain.



Figure 2: Origin of the participating networks

Primarily networks were chosen that had already stated a serious interest in possible transnational co-operation with other networks. These networks are mostly regional networks incorporating developing and producing companies of every size, research institutions (including universities), institutions for training and education, and other service providers (e.g. Chamber of Commerce, banks etc.) while at the same time retaining regional concentration. This approach assured a well balanced ratio of SMEs and major companies represented in this study.

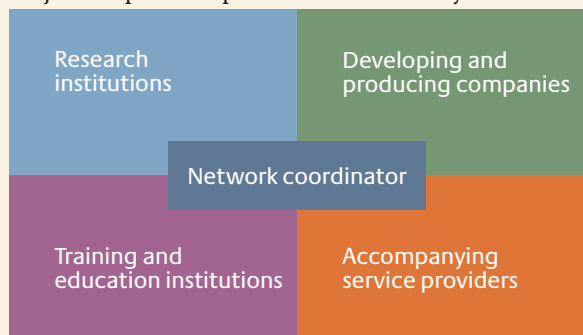


Figure 3: Typical structure of networks that participated in the survey

Networks solely concerned with research or education were not regarded in the study since only networks with a certain number of industrial enterprises were eligible to participate. Accordingly, networks from very different areas of technology and application took part (mainly life sciences, new materials, micro- and nanotechnology, information and communication technique, production and automation technique as well as environmental technique).

Important criteria besides the basic interest in transnational co-operation with other companies were

- ▶ existing internal structures characteristic for so-called regionally acting networks and
- ▶ the networks had to be active in innovative, new areas of technology and application

Networks' characteristics ranged from the area of aerospace technology, primarily dominated by major companies, to those of networks from the textile sector characterised by a large number of small and medium-sized companies.

The interviewed networks were chosen without country-, size-, or technology-specific preference by project initiators and innovation agencies of cooperating countries from Europe. These agencies often coordinate regional- and national-specific programmes on behalf of the accountable ministries, and consequently maintain a good overview over the activities of the chosen candidates. Partially also regional ministries provided active help.

In addition to the internationalisation strategies themselves it was of fundamental interest to gain a better understanding for the internal of processes (like decision making, etc.) within those networks. Furthermore, networks were asked why internationalisation is deemed vital from their perspective and which aspects they focus upon. Concerning those networks that had previously utilised measures to realise their internationalisation ambitions, it certainly was of interest to learn about the progress and results made as well as about the barriers encountered that could be identified as important for international co-operation. The interviews were conducted by provid-

ing an online questionnaire that would be answered by the network manager. A first contact was established preliminary to the survey usually in form of a personal telephone call, in order to receive appropriate background information to avoid possible misunderstandings. The addressed network managers proved to have a very different amount of information available on the member companies of their own networks. The spectrum reached from very detailed knowledge on member companies (number of companies, employees, turnover etc.) to very little information (no numbers available or just a very rough oversight on member companies). In the following, only results respectively classification numbers will be accounted relying on an adequate number of answers.

Further information concerning the participating networks like e.g. turnover and number of employees as well as age and stadium of development of networks are summarised in appendix I.

### Current State and Perspective of the Interviewed Networks' Internationalisation Activities

In the following, mainly those questions and answers will be discussed dealing with the ambitions, reasons, existing strategies, barriers and enablers and the results accomplished so far in internationalising the interviewed networks. For all partaking networks a more international orientation is an important topic, no matter if initial successes are achieved already or the first steps are yet to be made.

#### Ambitions of the interviewed networks

Amongst many other factors, motivation and intensity of internationalisation most importantly depend upon the own motives of the networks respectively their members. If the ambitions to act on an international stage are comparatively weak, intensity of activities in this field tend to be less than average. If on the other hand a network has clear perspectives to act Europe-wide or even worldwide, active pursuit and according activities should be the logical consequence. For the overall understanding it was important to find out if the interviewed networks are focus-

ing activities primarily onto a European level or if they orient worldwide. Figure 4 shows that most interviewed networks have worldwide ambitions (53%) or at least want to act Europe-wide (39%). As a consequence of the selection criteria only a small part of the participating networks were merely nationally orientated.

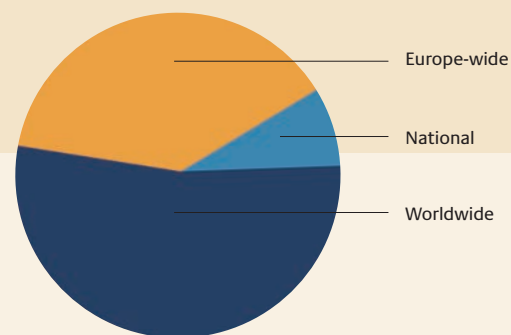


Figure 4: Ambitions of the interviewed networks (based on 88 networks' answers, no multiple answers allowed)

#### Reasons for an international orientation

Networks do not adapt per se increasingly to an international orientation, they often react to trends and changes imposed upon them externally. Since international activities and co-operations are more expensive and time-consuming than those strictly limited to national level, clear benefits have to arise from such action or have to be expectable at least. As explained previously, a wide range of reasons for a more international orientation of networks and their subjects exist. It is to be taken into account that these reasons are very different and may be affected by many factors. Therefore, it was especially interesting to find out the interviewed networks' primary reasons to adjust increasingly to an international orientation. Because these reasons were expected to be very complex, no default answers were given, to allow room for the respondents to formulate their reasons. The answers then were evaluated and mapped according to their contents.

The answers of the interviewed networks are summarised here, giving rise to seven main thematic emphases (figure 5).

Taking a closer look at the answers given, four reasons were mentioned quite often. Most networks regard the contribution that internationalisation promises to assure the lead in technology internationally and to strengthen the market position worldwide as primary reasons for the necessity to internationalise their focus increasingly. Furthermore, expectations predominate that this type of co-operation will make access to eligible target markets easier and more efficient. Given the case that networks lack some important competences internally, international co-operations shall primarily allow for the missing know-how on usability or technology to be acquired. This is even more important if networks focus their activity upon areas with high generic character, in which an increasing convergence of technologies originating from different fields is to be observed.

As anticipated, mutual exchange of experience and information does also play a major role, though not one as important as might have been expected. This fact is even more surprising given that no obligations are tied to the mutual exchange of experience and information; accordingly this type of activity should be easier to realise than the other three primary motives. This is the reason why it was to be expected that this answer would be the predominant motivation, because it does not require much effort to realise and from a rational standpoint it represents the best answer to the primary barriers for a transnational co-operation (see figure 9).

The wish for collective peer assessments as a possibility to intentionally match up, thus making a mutual comparison of competence in technology and know-how possible, is another important argument even if it is not one of the top four. This kind of peer review is a good instrument to identify the participants' individual strengths and weaknesses and to find areas to be improved. Unfortunately these peer assessments are usually both time-consuming and require a lot of mutual trust, the last mentioned often being the primary barrier for a transnational co-operation (see figure 9). Because actual literature rarely presents indicators or instruments to assess peer reviews between networks, there is a definite need to provide appropriate instruments to interested networks in the future. The authors will pay attention to this issue in the near future by developing an appropriate approach for

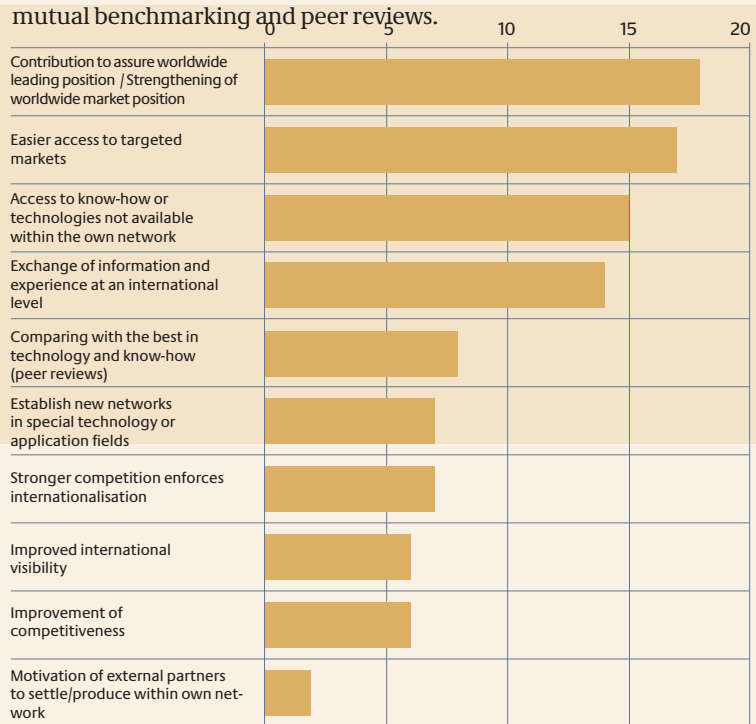


Figure 5: Reasons for the internationalisation of networks (89 networks answered, max. two answers per network possible, figures in %)

### Responsibility for the internationalisation strategies of networks

Given the ideal case, the first step towards an aspired internationalisation of networks and their members is the formulation of a collective strategy or approach by the involved parties, to define and to later on monitor primary goals, methodical approach, liabilities, milestones, indicators, etc. But who is responsible for designing the strategy, respectively their realisation into a concrete course of action within the network? Again there were no default answers to this question, so the answers would not be limited unnecessarily. Evaluation revealed that answers are limited to five different categories of subjects (see figure 6). In most cases the strategy is determined by the existing management board or a similar steering committee (44%) The rarest named solution is the existence of a specialised internal workgroup for the topic internationalisation (5%). At first glance it seems surprising that only in 25% of cases, the members, respectively the companies themselves are in charge of issues dealing with internationalisation. This again reinforces the thesis that membership in networks appears interest-

ing and vital for companies amongst others because they expect active support from the network's management on their path towards internationalisation. In about 16% of cases the network's manager or the network itself takes the lead, in 10% of cases an external person or institution bears responsibility for concept and realisation of internationalisation activities.

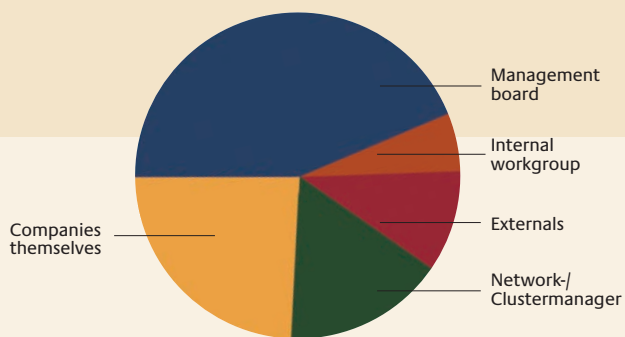


Figure 6: Responsibilities regarding strategies for internationalisation of networks (based on 89 networks' answers, only one answer per network)

### Internationalisation strategies of the interviewed networks

One of the central concerns of the study at hand was to find an answer to the question for potentially existing internationalisation strategies and - if applicable - possible options for action. Out of this motivation networks were asked about their internationalisation strategies, so it would be possible to gain insight into these strategies being applied and - if so - on how explicit they are formulated. No pre-set answers were formulated to give enough room for the questioned networks to describe their utilised strategies in detail. As far as answers were ambiguous or couldn't be articulated in detail for confidentiality reasons, the networks managers were contacted separately afterwards by phone to get further information.

The results are shown comprehensively in figure 7, analogical answers were clustered according to topic. As the figure illustrates concrete plans for internationalisation do exist for only about 10% of the respondents. Concrete plans mostly contain some sort of written fixation of the prioritised target markets (e.g. in form of a business plan), partners (in the targeted networks respectively regions), acceptable

branches of application, concrete measures to realise these aims and options for action, a time- and budget-plan or milestones. These plans are evaluated and adjusted periodically by those in charge according to the progress made.

One might be surprised only every tenth network utilises those explicit strategies. On the other hand this fact just reinforces the assumption that an efficient, goal-oriented internationalisation of networks remains to be deemed exceedingly complex and only in rare cases the subjects in charge are able to advance the project on their own.

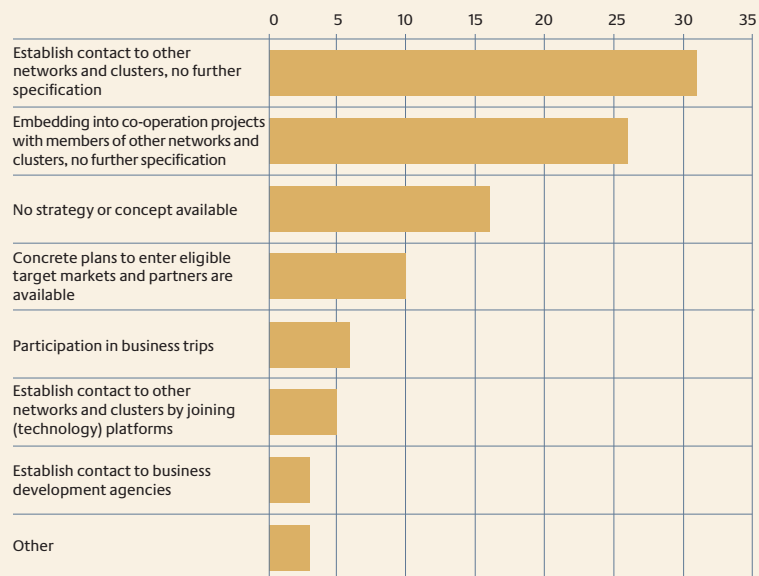


Figure 7: Internationalisation strategies of interviewed networks (based on 85 networks' answers, max. two answers allowed, all figures in %)

The majority of the interviewed networks had no strategy at all or only vague ideas on how the network and its members could realise a more international focus of activities than they have previously done (altogether about 70%). Most answers belonging to this category stated the establishing of contact with other networks to be their main concern, not giving details on method and intensity of the efforts (31% of cases). 26% of the networks interviewed regard the initiation of collective R&D-projects as their primary strategy to establish contact to target networks, respectively their member companies (though no further information were given on prioritised areas of

R&D or prioritised target markets/networks). Few respondents assigned collective business trips or the embedding of regional business development agencies to be appropriate strategies for internationalisation. But these answers also lack further specification.

**Co-operations between networks already achieved**

Indicators to evaluate internationalisation activities are complex and quite controversial. They depend very much on the initial aim the internationalisation of the networks had appointed. Because these aims proved to be very heterogeneous, within the study the comparatively simple indicator “co-operation realised up to now” was chosen to evaluate success of efforts undertaken yet. Certainly there is a lot of room for interpretation of the term “co-operation” and the resulting imprecision has to be taken into account. Figure 8 shows the co-operations with other companies or institutions achieved in the last three years from the point of view of the participating networks. A differentiation was made dividing both the regional (national, Europe-wide and worldwide) factor and equal respectively new areas of technology and application.

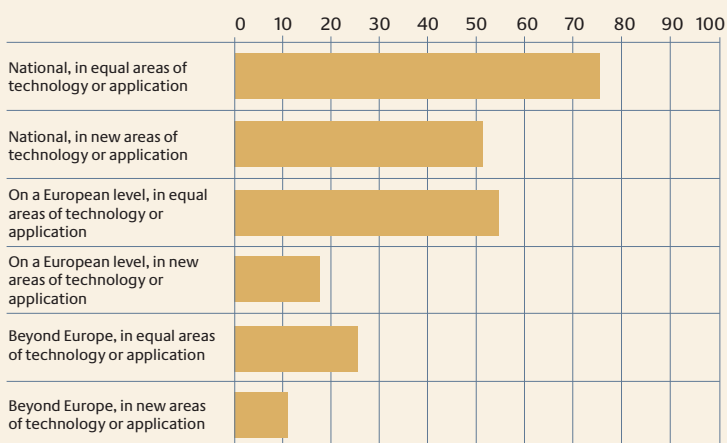


Figure 8: Co-operations achieved within the last three years according to regions and application areas (based on 86 networks’ answers, multiple answers allowed, figures in %)

Like expected, nearly all networks interviewed report successful new co-operations on a national level; notably a lot of co-operations were realised within the frame of equal technological and applicational areas (about 75%). Only half of the respondents

answered to have accomplished new co-operations into new technological areas on a national level, a fact that is certainly surprising at first glance. One explanation is the quite large number of very young networks among the respondents (approx. 25% of networks interviewed asses themselves to be embryonic networks). Those young networks usually don’t focus upon new co-operations in new areas of technology and application but set other priorities within the areas they focus upon. Besides, networks confirmed the continuing difficulty to co-operate with other networks acting in different areas of application or technology, even on a national level. Often there are problems finding the connecting moments that would indicate where co-operations are possible and how far those could reach.

Half of the networks interviewed report successful co-operations in equal areas of technology and application on a European level. This definitely is a positive amount. Partnerships on a European level with partners coming from other areas of technology or application in contrast seem to be much harder to establish (less than 20% of the respondents have succeeded here). Only one quarter of the networks interviewed report success in establishing new co-operations within their area of technology or application. Only 10% of the networks interviewed report this kind of achievements beyond their applicational or technological sector, although it has to be kept in mind only little more than 50% of the interviewed networks had worldwide ambitions.

**Barriers to a co-operation between networks**

In spite of numerous examples for successful co-operations between networks respectively their members, a number of barriers for partnerships with other networks still remain, as one might have expected particularly to international ones. Intended strengthening of international focus of networks on the part of networks’ managers or on behalf of motivational support by third parties calls for the awareness of characteristic causes for these barriers in order to reduce or remove them in advance, if possible.

Figure 9 differentiates the most common barriers to an international co-operation of networks from the interviewed networks’ point of view.

Lack of trust between partners is the most dominant single reason posing a barrier, usually because networks are not sufficiently familiar with each other (approx. 23% of cases). Also the fact that often competitors are present in networks willing to co-operate (approx. 22% of cases) impedes co-operations (at least in the beginning) or possibly leads to conflicting interests, as one might have expected. Lack of time and resources as well as financial reasons were stated at 15% each, illustrating the fact third parties can only provide little help to reduce barriers e.g. with external support only. An insufficient level of concretion of potential co-operation projects, spatial distance or language barriers are minor factors, each only being mentioned by less than 10% of the respondents.

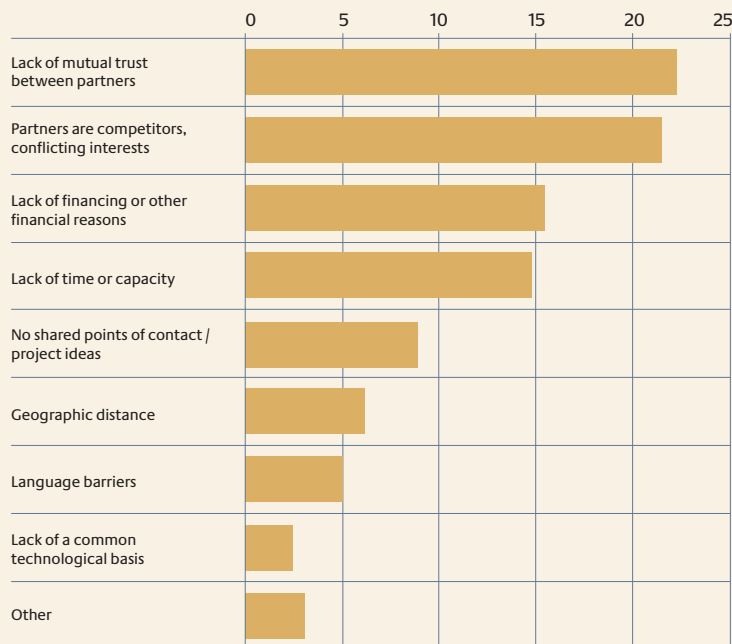


Figure 9: Main barriers, hindering a possible co-operation between networks from their managers' point of view (based on 84 networks' answers, multiple answers allowed, figures in %)

All in all the main barriers against international co-operations between networks appear similar to those problems arising on a national level, often predominant in the beginning of the lifecycle of respectively young networks (lack of mutual trust and fear of co-operation with competitors).

### Possible financing sources for a collective trans-national co-operation

In the beginning expenses for co-operations of every kind usually outweigh additional turnover and profit, this is even more true for international co-operations. Since a lot of successful co-operations on a European level and worldwide were reported (see figure 8), it was of special interest to find out about their present and future financing.

Figure 10 gives a good impression of the prevailing experiences and expectations in terms of financial support for international co-operations from the networks' point of view.

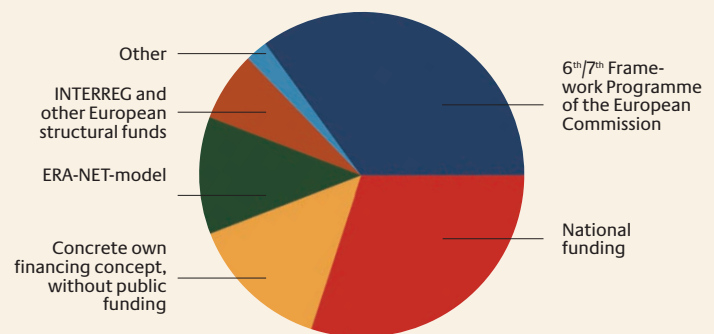


Figure 10: Financing sources for international co-operations from the networks' point of view (based on 83 networks' answers, multiple answers allowed)

The interviewed networks primarily mentioned the 6th/7th Framework Programme of the European Commission (approx. 30%) and national funding (approx. 26%) as most suitable financing instruments for international R&D co-operations. The first-mentioned has been an established instrument for years now, even if it is not regarded unproblematic amongst SMEs due to the large effort connected to applying and the immense bureaucratic obstacles arising in the process of realising projects. On the other hand it turned out that collaborative research, done by international consortia of this kind, is very well suited to establish long-term collaboration on an international scale in addition to their actual R&D activity.

Own empirical investigations amongst German SMEs revealed that nearly 40% of the companies interviewed regard the chance to collaborate with part-

ners at target markets, individually aimed at in order to gain easier and faster access to these markets to be their primary reason for participating in projects of the 6th Framework Programme (see figure 11). This impression was backed up and verified by own evaluations recently performed or currently ongoing. In those analysis many European companies interviewed report having gained easier access to the targeted markets by participating in this kind of collective R&D projects. Partially the value of the improved access towards foreign markets was assessed even higher than the technology- or product-specific development that - originally - was the direct aim of the research project.

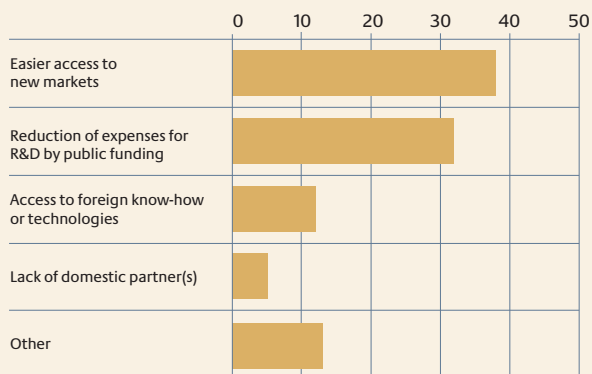


Figure 11: Reasons for participating in international R&D projects in context of the 6th Framework Programme of the European Commission (40 German companies funded by the 6th Framework Programme were interviewed, own enquiries, figures in %)

In matters of eligible funding sources nearly 15% of the networks interviewed report to have their own financing concepts for long-term co-operation with foreign partners (figure 10). European structural funds like INTERREG and others only play a minor role and were mentioned primarily by Polish and Italian networks. It is particularly noticeable that about every tenth network reports to make use of the comparatively new so called ERA-NET funding scheme. This scheme stands for a new approach of transnational research funding within Europe supported by the European Commission. Partners of the project are individually funded according to their national funding scheme, but the consortium as a whole acts transnationally. Partaking national funding authorities define contents and goals of the joint calls which were prior jointly agreed upon. The European Com-

mission takes care of the additional amount of administrative work resulting from the realisation of this kind of programmes with the help of national project executing organisations or innovation agencies. Consequently, R&D consortia acting transnationally can be established a lot easier since they do not have to deal with the bureaucratic work usually connected to applications for the European Framework Programme. Furthermore national funding programmes' workflows and procedures don't need to be altered because only the domestic associate partner is funded. The ERA-NET approach in contrast to the EUREKA approach also features the advantage of largely harmonised application and testing procedures. Prior experiences with especially successful ERA-NET projects (e.g. ERASME – [www.erasme.org](http://www.erasme.org) or MNT ERA-NET – [www.mntera.net](http://www.mntera.net)) indicate both a wide acceptance for this approach on the part of applicants and a smooth application process.

## Conclusion

On the following pages the most important results of the empiric analysis shall be summarised in the form of hypotheses and subsequently evaluated. The main problem areas existing for the internationalisation of networks will be summed up and innovation policy's fields of activity to be prioritised will be pointed out. The 91 networks interviewed stand for approximately 32,000 member companies and institutions with two million employees and a 2006 turnover of approximately 500 to 600 billion Euros (details see appendix I). Certainly further analysis will be necessary to verify the results of this study on a wider basis. Still the number of 91 networks interviewed provides a good base of significance in the case given.

### The subject "internationalisation" is very complex and will have to be treated and discussed more differentiated in the near future

The term "internationalisation" is a very heterogeneous one, implying many facets and being subject to different meanings respectively interpretations. Although internationalisation in general certainly is important and should be appreciated, this doesn't mean internationalisation per se has an economic value. Networks and their members on the paths towards internationalisation are driven by various reasons. This must be taken into account in future discussions on the topic, opposed to the currently common practice within the discourse that claims to argue on a so-called "meta-level". If networks seek to develop an international orientation, there is in the beginning a great need to analyse (amongst other things) both which (European) networks could be adequate and productive co-operation partners as well as the networks primary reasons for taking this step (search for know-how, access to new markets etc., see also figure 5). This also determines the options for actions to be taken. Such analysis should be made a prerequisite before further public funding is granted; at least networks must be encouraged and supported to perform this kind of analysis. From such analysis clearly comprehensible action plans result, individually tailored to the particular starting points and needs of networks.

### European networks are usually relatively young, but have cross-border ambitions from the very beginning

All in all the comparatively young age of the interviewed networks comes as a surprise (see figure 12, appendix I). Despite the fact that primarily innovative and high-performing networks (interested in transnational funding) were chosen to participate in the survey, more than half of the networks interviewed are less than five years old, one quarter of the networks even assess themselves to be embryonic networks.

This exemplifies the continuing dynamic in the process of networks establishment. Still more than 90% of the interviewed networks have Europe-wide or worldwide ambitions, independent of age, phase or the branch of application the networks are active in.

### Network managers are often not directly responsible for the internationalisation of their networks

Network managers typically take care of a variety of duties and activities concerning their networks. For the most part they are either direct member of the network or they are elected by the networks' members (in more than 80% of cases). Surprisingly they are only seldom (in less than 20% of cases) regarded accountable for the internationalisation strategy of networks (see figure 6), if at all only at a later stage for concrete operative measures for implementation. Usually the management board or similar boards of the networks (nearly 50% of cases) or the companies themselves (about 25% of cases) define the respective internationalisation strategies and consequent options for action.

### The four dominating reasons for the internationalisation of networks

Each network has its own individual reasons to internationalise short- or medium-term; a fact not too surprising since the topic is a quite complex one. Yet four different motives stand out, being mentioned by two thirds of the networks interviewed. All motives were mentioned equally often (in between 14 and 18% of cases, also see figure 5):

- ▶ Contribution to realise technological leadership and to strengthen the own position on markets worldwide
- ▶ Improved access to identified target markets

- ▶ Access to know-how/technologies not available in the own network
- ▶ Improved exchange of experience and information on an international level

It is important to keep these reasons (which are partially very divergent) in mind, when strategies for funding of internationalisation efforts of networks will be designed in the future, since they lead to different strategies and actions to be preferred.

#### **Internationalisation yes – but how to do it?**

The imperative internationalisation poses for networks on the one hand and the strategies and steps necessary for its realisation on the other hand are way apart. Only every tenth network interviewed was able to present reliable strategies or appropriate approaches for action concerning the internationalisation of their network and the participating member companies. Most networks confirmed not having any strategy at all (almost 20%) or just have vague ideas on what could be done concerning the desired internationalisation (altogether nearly 70%, see figure 7). These figures reinforce the thesis already existing which criticises the lack of long-term and strategic thinking within networks on the topic “internationalisation”. Usually there is no appropriate, reliable planning on and concretisation of the options for necessary actions. So far, most publicly funded supporting measures which aimed to match certain networks with other or support networks on their way for internationalisation, did not really take these findings into account. As a logical consequence the sustainability of such supporting actions was quite insufficient. Mostly standardised supporting and matching activities were performed, but no really demand-oriented or tailor-made solutions have been implemented (not taking the individual needs of the relevant network partners into account). As a logical consequence, the Initiative Competence Networks Germany, which is the author of this study, just designed appropriate tools and approaches to offer interested networks or cluster tailor-made support on their way to internationalisation.

#### **The four main barriers for a transnational co-operation of networks**

Even if a transnational co-operation is deemed desirable, there are often reservations and (mental) barriers remaining. Two factors prevail: the lack of trust between partners and the fact that there are competing companies among the networks willing to co-operate. At least during the first stages those two factors complicate actual co-operation. Even though the lack of time / resources and funding sources are also factors of concern, they are not as significant as the barriers mentioned earlier (see figure 9). To take the respective main barriers into account and provide adequate solutions early enough can make a huge contribution to reduce and eliminate many partners' reservations in the early contacting phase. This is where the networks' managers are called for utilising the right instruments. Any supporting actions from a neutral third party could also facilitate the matching of interested networks.

#### **Accomplished co-operations tend to focus on the European area and on similar fields of application or technology**

The majority of networks interviewed report to have already accomplished successful co-operations with other networks. This is especially true on a European level and in similar fields of application or technology applying to more than 50% of cases (see figure 8). Co-operations of this type, still on a European level, yet into other/new fields of technology or application, seem to be much more demanding, with only less than 20% of cases reporting successes. Nothing to be astonished about since co-operations between networks originating from other fields of application or technology have proven themselves complicated and are per se more difficult to establish, even more so for cross-border co-operations. Compared to the large amount of successes reported for European co-operations within similar fields of application or technology, the number of worldwide co-operations is rather low, too (approx. 25% of cases).

### EU-Framework Programmes and national funding programmes are regarded as primary funding sources for international co-operations

Funding sources like the Framework Programme of the European Commission or national programmes are considered to be the primary instruments when it comes to financing international co-operations (applies to 65% of cases, see figure 10). These funding sources often have objectives (usually funding programme oriented to R&D or innovation), different than the respective internationalisation strategies applied by the networks interviewed (only in about 25% of cases R&D co-operations also represents the prioritised internationalisation strategy, see figure 7). Due to the absence of appropriate tools or publicly funded support programmes, networks and their members seldom have any other option than to use such support programmes when in need for financial support on their way to operate more internationally. Further discussion with some of the network managers revealed that using R&D or innovation supporting projects, financed on national or European level, for internationalisation purposes are considered to be an emergency solution. Typically business support activities, like networking visits or organising of fairs etc. are also considered accompanying measures, but they can not be the main tools to support interested parties to operate more internationally. A real task to identify and implement appropriate public support measures remains, both on a national and on an international level, to provide the networks and their members tailor-made support.

There is a wide gap between objectives of policy makers respectively funding instruments on the one hand, and prioritised internationalisation strategies, respectively reasons for an internationalisation on the other hand. To actively involve networks' members into the Research Framework Programme of the European Commission is certainly of use here, although it is usually the toughest and most complex alternative of external funding available. This field is clearly in need for (national) grant policy actions.

### Which criteria classify a network as being internationally orientated?

The degree of internationalisation a network has reached cannot be assessed by a mere list of activities. Network managers like to depict their international orientation with participating in international meetings or happenings. But this cannot stand a closer look. The role of the network remains undisclosed, did it just participate passively or was it actively involved? Furthermore, an assessment has to take into account, if there are mechanisms within the network ensuring that the whole network benefits from the knowledge gained from participating. This is the only way to assess whether a network as a whole has adjusted to an international perspective or whether particular activities of individual network partners dominate. Certainly other indicators like concrete successes, improved innovation capability and economic figures have to be taken into consideration, too.

Otherwise, membership of only one internationally active R&D institute or company leads to a network being able to claim participation in international exchange and thereby claim to be internationally orientated. This kind of classification wouldn't make sense in terms of critical reflection and evaluation.

A more precise classification is needed here to deal with the topic profounder than it has been dealt with so far. In appendix II an approach towards this classification issue is outlined to give a first impression, though it is not very extensive yet.

## Appendix I

### Information on the Networks Interviewed

#### The economic importance of the networks interviewed

From the very beginning the authors knew that only a small part of the vast area of European networks could be covered with the limited number of networks comprised, since the 91 networks interviewed originate from ten European countries only. Irrespective thereof it was of interest to assess the economic meaning of the networks involved in the survey. Standard figures like the

- ▶ number of companies and institutions represented
- ▶ annual turnover of the networks' members
- ▶ number of employees of the companies and institutions

help to get an impression on the economic meaning of the participating networks. The figures displayed in the following demonstrate impressively that the networks chosen represent companies and members holding significant economic power.

#### Number of companies and institutions active in the networks

Of 91 network managers interviewed 86 stated the number of their member companies and institutions (universities, research institutes, funding agencies, banks etc.). According to their answers there are about 31,500 companies and institutions represented altogether. The figures varied from 25 to 8,000 members per network. The five networks that did not reply do not represent a large number of members (according to own estimations between 400 and 500 companies), leading to an effective number of about 32,000 member companies and institutions represented in the 91 networks.

A finer distinction (e.g. differentiating SMEs and major companies, determining the ratio of companies and other institutions) was abstained from because the quality of data did not suffice. Since no purely research- or education-oriented networks were included, companies preponderate within the networks chosen.

#### Turnover of the companies acting in the networks interviewed

Figures on the overall turnover of the partners active in the respective networks definitely were the hardest figures to get. In this context it is to be appreciated that 44 of the network managers interviewed were able to give reliable figures after all, about half of the networks interviewed. These managers were informed very well on the turnovers and other figures related to their networks and had excellent information on their networks' data available.

All in all the members of these 44 networks achieved a total turnover of about 285 billion Euros in 2006. Definitely an impressive figure, even more taking into account half of the networks didn't provide data; so the actual total turnover is probably much higher.

#### Number of employees working for the networks

61 network managers of the 91 network managers interviewed provided data on the number of employees working for the member companies and institutions. The number totals about 1.8 million employees. A remarkable number, even more considering that 30 networks did not answer and consequently are not present in the total number.

#### Character of the networks interviewed

To assess the results later on it is important to know the basic structures of the networks that took part in the study, so possible contexts can be discovered easier. First thing of interest was the age of the networks. Experience has taught that in general older and consequently established networks have advanced more in terms of internationalisation and gathered more experiences in this field than their young pendants. 86 of the 91 network managers answered the question for the age of their network. The legal form of the networks did not matter, but it needed to be documented by a formal act, e.g. by a co-operation agreement etc. Figure 12 shows the networks divided according to their age.

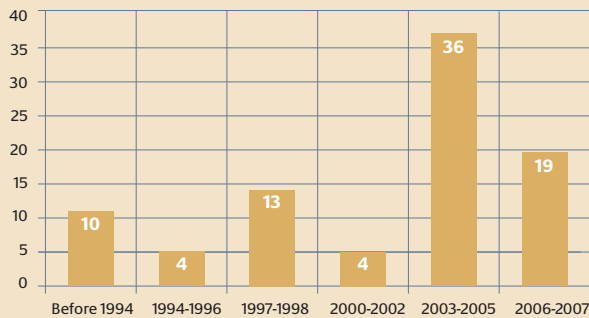


Figure 12: Age structure of the interviewed networks (based on 86 networks' answers)

It is striking at first glance that a tight majority of networks (52%) is younger than five years. Still the number of young networks in proportion to old ones surprises. All in all only 16% of networks were at age ten or older. These networks originate primarily from Spain, Italy and Germany. Nevertheless, in some cases networks are older but have signed a formal contract or co-operation agreement just recently.

Besides the age the phase of development of the individual networks is of interest. Generally older, established networks have gained experiences in the context of internationalisation, respectively are aware of the necessity to internationalise (figure 13). The respondents were offered four categories to assess themselves:

- ▶ Embryonic network (newly found network; communication, exchange of information and services offered by the network have just begun recently)
- ▶ Established network (network is established and has clear perspectives to grow)
- ▶ Fully developed network (well established network which has reached its peak performance, further growth is only to be expected to a minor degree)
- ▶ Declining network (network is past its prime, will lose members and importance respectively)

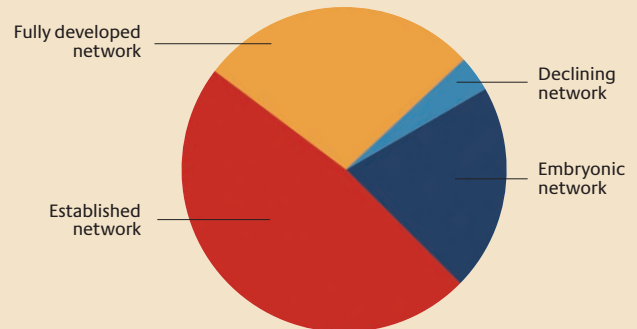


Figure 13: Phase of development of the interviewed networks (based on 86 networks' answers, self-assessment)

As expected, most networks assess themselves as established or fully developed networks (more than 75% of cases). Taking into account half of the interviewed networks are younger than five years (figure 12), the figures are a little surprising. All in all the self-assessment of the networks' development phase means more than the age, also considering the reasons mentioned above.

The number of companies and institutions represented in the participating networks is interesting, too. The networks were offered four categories at this point (see figure 14). Most networks represent more than 100 members (45%), second comes the category between 50 and 100 members (30%). Considering a number of young networks (see figure 12) were part of the survey, it doesn't come as a total surprise 25% of the networks have less than 50 members.

The network bringing together the most members (more than 7,000) is a network from Italy; some small networks in Germany and Poland are those representing the fewest members with less than 20 members each.

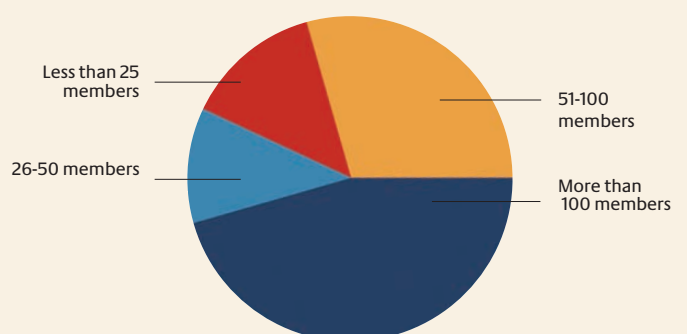


Figure 14: Number of companies and institutes represented by the networks (based on 88 networks' answers)

The performance of networks very much depends upon network managers, respectively network coordinators and the way they are linked to their networks. There are several entirely different approaches to that being practiced in a similar fashion throughout Europe. One approach consists of the co-ordinator or the office themselves being members of the network. In another approach the co-ordinator or the office are no direct members of the network, but are entrusted with this responsibility by the network. In a third variant an external service-provider takes the lead being appointed by third parties. This variant is especially common if the network management is financed by third parties and the financer wants to exercise an amount of direct influence.

In the survey a narrow majority of the interviewed networks were managed by a co-ordinator from their own ranks (51%). In about one third of cases the co-ordinator did not originate from the networks directly, but was assigned by the majority of members (see figure 15).

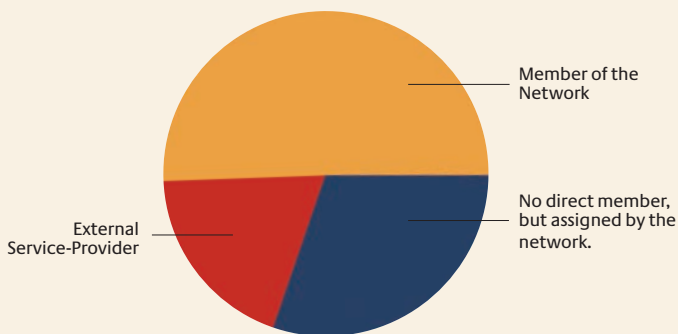


Figure 15: Relation between network managers and networks (based on 89 networks' answers)

## Appendix II

### Categories of Networks' Internationalisation

In this appendix an approach is presented for possible categories describing a network's internationalisation. These categories are meant as a basic distinction revealing the differences concerning the level of internationalisation networks have achieved. There is no direct link between the categories and the networks interviewed in the study.

**7 Obviously internationally acting network:** both the network itself as well as its members demonstrably act successful on an international level. The network is recognised as such acting primarily international. Also foreign partners are members of the network. A large number of examples for successful international co-operations exists resulting in improved innovative dynamic, a strengthened market position and improved financial figures of the network and its members.

**6 Intense cross linking / partnership with one or more foreign networks.** A lot of measures and activities both on behalf of the management and most of the network's members point out the international orientation of the network. A large number of examples for successful international co-operations exist resulting in improved innovative dynamic, a strengthened market position and the financial figures of the network and its members.

**5 Active, regular and intense participation of the network and its members in European projects and other events,** partially also initiated by the network itself. The network is internationally present and accepted by likewise foreign partners. There is a basic strategy / implementation plan. Members and management can report on first successes in international co-operations. Still, there is potential to adjust to a more international orientation.

**4 Selective co-operations with international partners** exist (network manager, institution or company), but are unspecific and rather sporadic. Single members are already internationally active and linked, but the network itself is not recognised as acting internationally. In spite of first successes there is still a high potential for further internationalisation that is yet to be implemented in specific strategic measures.

**3 First participation in and / or organisation of international events by the network's management are visible.** The management and most companies have the intention to internationalise, but there are no strategies or concrete options for action. The topic internationalisation does play a minor role to date, even if singular companies are increasingly internationalising their focus.

**2 No international activities** by the network's management are visible, **but are basically intended.** Concrete measures or plans do not exist, because other priorities prevail. Independent thereof, network's members might have eventual international contacts.

**1 No international activities** by the network's management are visible or **intended.** There are no ideas, no concrete measures or other plans. Independent thereof, network's members might have eventual international contacts.

# The Initiative Networks of Competence Germany



The Initiative Networks of Competence Germany (Initiative Kompetenznetze Deutschland) of the Federal Ministry of Economics and Technology (BMWi) brings together the 120 most innovative German competence networks which focus on technology. The Initiative offers a common platform to the highest-performing networks in technology and provides various benefits to its members. Members of the Initiative stand out due to innovative partners, intensive co-operations and the goals they share. Outstanding proximity to markets and industry, regional integration, dynamics in their development and flexibility are qualities characteristic for them. These qualities sum up to the competence networks allied in the initiative being a crucial element of technological performance, economic growth and competitiveness.

With the Initiative Networks of Competence Germany (entitled “kompetenznetze.de” until November 2006), the BMWi allows for the Initiative’s members to present their range of services and products to a broad audience, national and international, to demonstrate the attractiveness of Germany as a region for innovation. The concept of Kompetenznetze Deutschland is to be the “league of the best innovative networks” in Germany; membership to the initiative is a quality label for German networks.

## The Initiative

- ▶ supports the development of Networks of Competence in different fields of innovation,
- ▶ helps Networks of Competence to develop a visible profile,
- ▶ promotes Germany on the international market,
- ▶ gives access to a multitude of information and communication channels,
- ▶ enables presentation to relevant target groups via platforms like fairs, events and publications,
- ▶ provides ongoing support to the networks in their further development and in current activities such as press and public relations work,
- ▶ supports its members in operating on an international level.

## What are Networks of Competence?

The following attributes are characteristic for the networks active in the initiative:

- ▶ networks of competence,
- ▶ are innovation clusters with a regional focus but acting on an international scale,
- ▶ concentrate on a specific thematic area,
- ▶ are capable of generating innovations with a particularly high value-added potential,
- ▶ cover many links in the value chain and incorporate multiple sectors of industry and scientific disciplines,
- ▶ stand out by virtue of the close interaction and communication among their members,
- ▶ work within the context of an infrastructure that favors innovation, and
- ▶ help to give regions a distinct profile and an advantageous position with respect to their international competitors.

## Criteria for Membership

At the moment the initiative represents 120 competence networks from nine areas of innovation and more than 30 regions, thus demonstrating the strength of the innovative region Germany. More than 6,000 companies and 1,600 research institutions are active in the member networks of the initiative.

The main criteria for networks becoming a member in the initiative are

1. Technical focus
2. Regional concentration and integration
3. Organisation and identity of the network
4. Actors from different stages of the chain of added value
5. Collaborative development of technologies
6. Sustainability of the network
7. Innovative performance and potential for added value

## For further information, please contact

Agency Networks of Competence Germany  
 c/o VDI/VDE Innovation + Technik GmbH  
 Steinplatz 1, 10623 Berlin  
 Germany  
 Phone: +49 30 31 00 78 219  
 Fax: + 49 30 31 00 78 222  
 Mail to: kompetenznetze@vdivde-it.de

## Recommended Literature (some not available in English)

Andersson, Thomas; Schwaag Serger, Sylvia; Sörvik, Jens; Wise Hansson, Emily (Publishers):  
The Cluster Policies Whitebook.  
Malmö (Holmbergs), 2004

Brussig, Martin; Böhm-Ott, Stefan et al.:  
Regionale Netzwerke erfolgreich gestalten und betreiben.  
Frankfurt (VDMA-Verlag), 2001

Interreg III C Project – Clusters Linked Over Europe (CLOE):  
Cluster Management Guide – Guidelines for the Development and Management of Cluster Initiatives.  
Vienna, 2006

Department for Trade and Industry (dti, since restructuring):  
Department for Business, Enterprise and Regulatory Reform): A Practical Guide to Cluster Development.  
London, 2001

Flocken, Peter et al.:  
Erfolgreich im Verbund. Die Praxis des Netzwerkmanagement.  
Eschborn (RKW-Verlag), 2001

Müller, Bernhard et al (Publishers):  
Kommunikation in regionalen Innovationsnetzwerken.  
Munich and Mering (R. Hampp Verlag), 2002

Porter, Michael E.:  
Competitive Advantage of Nations.  
Palgrave Macmillian, 1998

United Nations Industrial Development Organisation:  
Development of Clusters and Networks of SMEs.  
The UNIDO Programme.  
Vienna, 2001

Ritter, Thomas:  
Innovationserfolg durch Netzwerk-Kompetenz: Effektives Management von Unternehmensnetzwerken.  
Wiesbaden (Gabler), 1998

Sölvell, Örjan; Lindqvist, Göran; Ketels, Christian:  
The Cluster Initiative Greenbook.  
Stockholm (Bromma tryck AB), 2003

Sydow, Jörg; Manning, Stephan (Publishers):  
Management von Netzwerkorganisationen.  
Wiesbaden (Gabler). Fourth edition, 2006

Sydow, Jörg; Duschek, Stephan et al.:  
Kompetenzentwicklung in Netzwerken.  
Wiesbaden (Westdeutscher Verlag), 2003

|



This brochure is published within the frame of public relations of the Federal Ministry of Economy and Technology. It is distributed free of charge and not for sale. It may not be used by political parties or canvassers during an election campaign for the purpose of electoral promotion. In particular, distribution at election performances, information desks of parties as well as the insertion, the printing and affixing of party political information and advertising material are regarded as a misuse. Prohibited as well is the passing on to a third party for the purpose of electoral promotion. No matter when, how or how many brochures the recipient has obtained, they may not be used – even without temporal relations to an election – in a way that could be understood as an alignment towards individual political groups by the Federal Government.