

# **Promoting Inter-Firm Networks in Industrial Policy**

## **— Danish evidence**

by

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## Abstract

During the 1980s “networks” and “networking” became main concepts in organization theory, industrial economics, regional economics, institutional economics, and in other disciplines as well. The increasing interest in relationships among firms represented a change in focus of research, reflected by the title of a contribution by one of the most productive authors in the field, Charles Sabel: “The Reemergence of Regional Economics”.<sup>1</sup>

Towards the end of the 1980s a number of industrial policy programs were launched in Denmark to promote inter-firm networks among SMEs<sup>2</sup>. Focus of this paper is an attempt to summarize and discuss the newly published evidence from a number of Danish evaluation studies of network programs, in order to estimate the outcome of participating firms in various models of networks and political incentives.

The design of the Danish network programs was strongly influenced by the successful industrial development in the Italian Emilia Romagna Region which was based on SMEs. It turned out, however, that the Italian model of networking had to be modified considerably to match the Danish context. In no time the Danish programs became role models for other programs, and the concept was sold to national and regional government authorities in a number of countries.<sup>3</sup>

More specifically the paper comments on some of the crucial questions that have been raised during the seven-year-period since the launch of the first program. These questions are:

- What is the role of the external (vis-à-vis the network firms) mediator/consultant?
- How well should firms know each other before embarking on a network process with positive expectations?
- To what extent should “programs” impose a certain structure (e.g. a written contract, a new business unit) on a group of companies setting out to form a network?
- What kinds of inter-firm networks can be promoted via industrial policy (short term/long term, horizontal/vertical, development/operations etc.)?
- How should the learning process that takes place within networks be described?
- How can economic incentives promote networks in the various phases which a network is likely to go through?
- How can the various industrial policy measures be characterized in terms of efficiency?

The aim of our discussing these questions is that SMEs are being challenged by globalization and

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<sup>1</sup> Sabel, Charles: "The Reemergence of Regional Economics - Changes in Scale of Production", 1987. Paper prepared for the SSRC Western European Committee Volume: Experimenting with Scale.

<sup>2</sup> Gelsing, Lars: "Evaluating network programs - more than a yardstick is needed", in FIRM-connections, vol. 3, no. 1, Jan./Feb. 1995.

<sup>3</sup> Similar programs in Norway and New Zealand have been studied and evidence is reported.

increasing pressure from foreign competitors. The global supply of standard manufactured goods exceeds demand, and production capacity has increased in Eastern Europe and in Asia with a speed that will reduce prices in the long run. This development is a severe threat to European SMEs, and basically they are left with two options: to compete on standard products or to develop new products of a higher quality, with better service and better features than those on standard mass markets. The first strategy is short-sighted and eventually European firms could die. The latter also squeezes the firm. The crucial question for an SME is how to access resources in order to improve its product lines out of standard mass markets. In short, our thesis is that networking could be one of the answers to this squeeze, but managers do not consider this a possibility, perhaps because of its considerable drawbacks: networking takes a lot of time/resources, which are scarce in an SME.

Therefore, it is a great challenge for industrial policy designers to overcome the understandable scepticism towards networking among SMEs and to construct political incentives that will allow a continued flexibility when SMEs enter networks.

## 1. Introduction

Small and medium-sized enterprises, inter-firm networks, internationalization, and industrial policy have all been high priority research issues for the last decade. The reason for this is quite obvious. The trend in business policy has been downsizing in large enterprises, and smaller firms have grown. At least the creation of new jobs in SMEs outnumbers that of larger enterprises. According to a newly published report by the OECD<sup>4</sup> the future challenge is, however, that SMEs should take a more active part in the globalization of the world economy.

The majority of SMEs mainly operate in domestic markets protected from international competitors. This, it is said, will change within the next 10 years, where SMEs have to internationalize, or they have to prepare for international competition in their domestic markets.

This challenge raises the questions, how can an SME take advantage of the opportunities or at least neutralize the threats. National and international collaboration seems an important means. Related to the firm specific problems we have a set of industrial policy issues. Dealing with those issues often require considering a normative and a positive research question. The normative question is: What is the optimal industrial policy - is it possible to find a "best practice policy"? Directly derived from this we may find the positive research question: How do different industrial policies work - and in this case, which kind of industrial policies have been adopted, what are the experiences?

From an economic point of view industrial policy or public policy is often considered a highly controversial and political field. Therefore, it has been emphasized that it is worthwhile to add a second positive research question, namely, what is the origin of a specific public policy?<sup>5</sup>

In this paper we will try to give a presentation of an industrial policy program that has been adopted in many nations as "a best practice policy": The Danish Network Program<sup>6</sup>. The paper is organized in four sections. First we describe the content in the original program. Then, in the second part, the origin is traced, and in the third part we will proceed to describe the empirical Danish evidence so far. Finally, in section four, we will try to address the normative question and outline some of the policy implications.

### 1.1. Why study inter-firm networks?

#### *Large and growing interest*

The concept "inter-firm-network" does not have a clear-cut meaning. It is a very broad concept and accordingly used in a variety of contexts. Perhaps only in mathematics we find a clear definition of "networks" consisting of nodes and relations. This very short definition does

not offer much help, and one might suggest that the popularity of the network concept in relation

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<sup>4</sup> OECD: Globalization of Economic Activities and the Development of SMEs, 1995.

<sup>5</sup> Schmalensee, R. (1988): Industrial Economics: An Overview. *The Economic Journal*. Vol. 98, 643-681.

<sup>6</sup> OECD: Best Practice Policies for Small and Medium-sized Companies, 1995.

to industrial dynamics is closely connected to its broadness.

It is not because of its definition in the narrow sense that inter-firm networks attract our attention. It is rather because the use of the term has triggered a wave of new and interesting studies in a number of fields within social science. In economics there has been a growing interest in theory and models addressing dynamics as a way to establish a better link between macroeconomics based upon very simple assumptions of the behavior of the individual firm and microeconomics with its strong connections to strategy and organization theory. These studies draw upon a number of sources in economics: innovation theory, evolutionary economics, transaction cost theory, new theory of the firm etc. This is not the place to present a review of the theoretical roots of the inter-firm network concept, nor can we mention the numerous works from the last two decades that have used the concept. We only note that the field inter-firm-network has attracted considerable interest from researchers within social science <sup>7</sup>.

If definition is a weakness associated with inter-firm networks, the huge amount of interesting empirical findings may be its strength and this might be one explanation to the question why inter-firm-networks have also attracted much interest from industrial policy makers. In one of the most quoted works (Piore & Sabel, 1984) it was elegantly demonstrated that the growing number and output of small enterprises challenged that of larger, well-established companies in what has become known as “The Third Italy”. Since then numerous delegations of politicians and administrative staff from many countries have visited the region, including also several from Denmark. In many cases the inspiration led to policy-programs supporting inter-firm networks. In table 1 below we present a tentative status on network programs with some inspiration from inter-firm cooperation in Emilia Romagna.

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<sup>7</sup> In 1991 a special issue of *Research Policy* (vol. 20, no. 6) was dedicated to networks. The issue was based on contributions from a number of economist in development economics, economics of technical change and industrial organisation/industrial economics.

**Table 1: Network programs by country - a few characteristics**

Country	Broker focused	Cluster focused	Part of “one stop” SME assistance	National vs. Regional	Resources (relative to population)
Australia	yes	no	yes	nat.	large
Denmark	yes	no	no	nat.	large
New Zealand	yes	no	yes	nat.	large
Norway	yes	no	no	nat.	large
Spain	yes	no	yes	reg.	large
The Netherlands	sometimes	yes	yes	nat.	medium
US	some places	some places	no	reg.	small
UK	yes	no	yes	nat.	large
Canada	yes	some places	no	both	medium

Source: Cynthia Liston: “Worldwide Connections - a status report on Inter-firm Collaboration Programs” in **Firm Connections** vol. 4, No 1 Jan./Feb. 1996. Data on Denmark is added.

There has been an understandable large and growing interest in the outcome of these programs. Was it possible to stimulate inter-firm networking in order to enhance competitiveness in small and medium-sized enterprises? One of the first efforts to stimulate inter-firm cooperation under the label “network” was the Danish network program 1989-92. This program offered much inspiration to other programs also in other countries. The concept was aggressively marketed - and successfully that is - by the Danish Technological Institute from 1990 and onwards, and the Danish model has been copied with modifications in number of cases. In this process the Danish model became a role model and a point of reference in fora where practitioners met with researchers over networking and industrial policy<sup>8</sup>.

#### *New evidence from Danish evaluations of network programs*

A final evaluation of The Danish Network Program has just been published<sup>9</sup>. This paper will discuss in detail the main findings in this evaluation study. The final evaluation has been expected for some time. The program ended its activities in 1992 and a final evaluation was announced by the chairman of the steering committee to be published in the spring of 1993. For various reasons it was not published until this spring - that is 3 years later. The postponement has had a negative effect on data collection. A considerable part of the participants in the program were hard to locate

<sup>8</sup> Meeting at the Aspen Institute, Colorado 1992. Conference in Lisbon 1993.

<sup>9</sup> Erhvervsfremme Styrelsen (Danish Business Development Agency), February 1996.

and contact, and when contacted they did not remember anything or enough for a survey. On the other hand, the relatively long period between the data collection and the end of grants offers an excellent opportunity to judge about the possibility of networks staying alive “on their own”.

Besides the evaluation of The Danish Network Program we will draw upon evaluations from other Danish network programs as well as foreign programs. Table 2 below presents an overview of newly published evaluations of programs following the Danish model to a considerable extend.

**Table 2. Danish national network programs and their evaluations**

Title of program	Period	Total budget/ amount spend mill. DKK	Networks established <sup>3</sup>	Number of firms	Evaluation published
Industrial Network Program	89-92	160/136,5 <sup>1</sup>	104	550	Midterm: Nov. 91 Final: May 96
Tourism Network Program	91-94	60/40	22	?	Midterm: Jan. 93 Final: April 96
Environmental technology...	91-94	60/48,1	27	84	Midterm: none Final: July 96
Export...	91-94	234/? <sup>2</sup>	(164)	(635) <sup>3</sup>	Midterm: none Final: none

Notes:

1: All programs spend less than the total budget; this is partly due to reduced budgets in individual network projects and partly due to lack of interest among potential applicants.

2: Since we still await evaluations of this program we only have unpublished estimates on money spend: 98 mil. DKK. (April 1996).

3: Only networks which reached the final phase are counted. For “export” we only have the total number of networks/firms in all phases. Figures in parenthesis are not comparable.

## 1.2. Images of networks

It is possible and meaningful to analyze business networks from a number of perspectives. The range of perspectives goes from interpersonal relations<sup>10</sup> over inter-firm relations to inter-sectoral relations<sup>11</sup>. Furthermore, networks can be seen as a structural feature of a production system or as an interactive process where individual enterprises share resources in order to solve common problems.

<sup>10</sup> See for example Aldrich & Whetten (1981): Organization-sets, action-sets, and networks. In P. Nyström & W. Starbuck (eds.) *Handbook of Organizational Design*. Oxford University Press. Pp. 385-408.

<sup>11</sup> Porter, M. (1990): *The Competitive Advantage of Nations*. New York: Free Press.

Focus in this paper is on inter-firm networks for the very pragmatic reason that the empirical basis in evaluations of policy programs is enterprises and not individuals. Even if networks then becomes ties between enterprises it should be born in mind that such ties are formed and developed by individuals. This feature has been clearly demonstrated in the Danish final evaluations where key employees changing jobs took with them the network activity and competence. This has been an obstacle to the collection of data but also leaves trace of network processes with little or no clear effect on the organization as such.<sup>12</sup>

Focusing on networks on the firm level represents a degree of normalization which is partly pushed forward by most public program administrative practices. Administrative units prefer to deal with companies rather than individuals for practical reasons and perhaps in order to push experiences from individuals to groups of employees in participating firms. Formalization of inter-firm networks is a hot issue in both policy and theory. We shall revert to this question in section 3.

### **1.3. The Danish network model**

The Danish network model was formed in the process which led to the launch of The Industrial Network Program 1989-1992 by The Danish Business Development Agency. The purpose of the program was to enhance SME competitiveness by the stimulation of cooperation among individual firms. The fields of cooperation could be sharing resources in production, distribution, marketing, product development, and transfer of knowledge. In order to qualify for a grant a group of minimum 3 companies should specify at least two functions they wanted to cooperate on. Shared marketing facilities were not enough. The overall budget of the program was approx. 25m USD from May 1989 to end of 1992.

The program operated in 3 phases. The first phase, called a feasibility study, would typically consist of a letter of intend from the firms in the network and a marketing report on the particular activity the network was formed around. In this phase networks could receive 100% refund on external expenses (i.e. a marketing consultant) up to a maximum of 13.000 USD.

The second phase set out to stimulate further preparation for the later production phase. This phase was called formalization (?) and consisted of the development of a business plan for the network, an agreement on the network organization being a contractual agreement or the set up of a new firm. In this phase networks could receive a 50% refund on external expenses.

If a network entered the last phase - production - a refund up to 50% of running costs connected specifically to network activities was offered for the first year and one of 30% the second year.

The program could offer a total grant for each network no larger than approx. 850.000 USD.

In 1991 the tourism sector had its own network program. Up till then firms in tourism could apply

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<sup>12</sup> This issue has been addressed by Gelsing, 1988: Local Industrial Networks - from production complexes to knowledge networks. Paper presented at The Regional Science Association's conference, Stockholm.

in the first program. In 1991 an environmental network program was launched, and in 1992 an export network program was started about the same time the budget from the first program ran out. In these new programs the model as described above was modified.

The original model had been criticized for offering easy money to consultants in the feasibility phase<sup>13</sup>. In the later programs the feasibility phase was changed so that only part of the expenses could be refunded. In the tourism network program 75% of external expenses could be covered with a maximum grant of 13.000 USD. In the environmental program only 50% of 26.000 USD could be received. For unknown reasons a feasibility study in Denmark these years had a maximum grant of exactly 13.000 USD.

A second major modification was that for programs on export and environment a pay-back mechanism was applied. According to this any network had to agree on paying back over a five-year-period the amount received as a grant if export targets were met.

Besides these modifications the four programs had very similar properties, and this similarity will be referred to as the Danish model of inter-firm network programs.

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<sup>13</sup> Gelsing and Knop: "Mid-term evaluation of The Industrial Network Program", 1990.

## **2. The industrial policy environment of the Danish Network Programs**

The break through of Danish network programs did not come out of nowhere. There are many explanatory elements which will be hard to underpin with evidence. We shall only mention two sets of historical logic that attempts to place the Danish programs in perspective/context.

The first set argues that the decision on the first network program was made in order to improve the effect of earlier major initiatives in industrial policy in a period where the Danish economy was facing extraordinary challenges. The second will argue that the model of inter-firm cooperation in Emilia Romagna was transferred to Danish political decision-makers in a very effective way.

### **2.1. From hardware to orgware**

In the beginning of the 1980s most governments in the OECD countries discussed how to cope with the growing impact from microelectronics. In W. Germany and the UK large programs were set up in order to speed up the national capacity to adapt to and utilize the new technology. In 1986 The Danish Technology Council suggested that Denmark should have a coordinated program to improve the use of new technology - microelectronics and new materials. The Danish Folketing (parliament) approved on the plan, and The Technology Development Program (TUP) was launched with a budget of 500m USD in 1986-1990.

One of the outcomes was that many companies which became new users of new technology, lacked the necessary competencies to take full advantage of the products (that is, lack of management, staff training, and of inter-organizational capabilities etc.).

This experience and the challenge of the European Single Market in January 1993 coming closer caused an urgent need for a new strategy. During 1988 the Ministry of Industry had strongly recommended mergers as a proper response to the Single Market. However, this recommendation had little effect in Danish companies except for some cases in the food processing industry and in the financial sector. The first attempt to formulate a strategic response turned out more or less a flop. Mergers were not an interesting solution to anything for the great part of Danish companies that were owned and run by the entrepreneur or his family. The minister had to come up with something better. The alternative strategy was formed in the spring of 1989. It was called "Strategy `92". The network program was an integrated part of the strategy.

From this perspective the Danish Network Program can be seen as a logic response to major drawbacks in the TUP-program combining a better transfer of new technology to SMEs with a response to the challenge of the Single Market.

## 2.2. The heritage from Italy

Technology was only one part of the “structural problem” in Danish industry; the other problem was often referred to as the size-problem. This problem caused an ongoing industrial policy debate throughout the 1980s.

In comparison with other small open economies it was argued that the Danish industrial sector apparently was dominated by SMEs. Other nations like Sweden, Norway and the Netherlands had the same number of SMEs but they also had large enterprises, and the real problem was seen as the lack of an internationally strong “locomotive” or a small group of very large companies that could pull the small enterprises. This was by no means a newly recognized problem, but the debate escalated in the late 1980s because of the sudden threat from the large internal European market that presumably would transform the multi-domestic Europe into one single market with homogenous customers demanding identical products.

How should it be possible, it was asked, for Danish “low-tech” SMEs to compete with large multinational corporations? As mentioned, for numerous reasons mergers seemed a non-existent solution.

In retrospect it may seem a historical compression of time, but the solution came as sudden as the previous discussion had been long. The Gordian knot was cut on the 10 October, 1988. In a talk at the “Jutland Technological Institute”<sup>14</sup> Richard Hatch<sup>15</sup> argued that the many SMEs in Denmark could easily be seen as a competitive advantage in the future. Many large companies already operated in almost all European countries. The “Single Market” would not affect those firms, and so only the competitiveness of SMEs could improve, in particular if they learned to operate as large enterprises. This could be achieved through cooperation within the specific activities that would restrict the single firm from competing internationally. Furthermore, Hatch argued that empirical evidence from the northern and central regions of Italy showed that it was possible to achieve economies of scale in SMEs through cooperation. More specifically this phenomenon was found in the textile districts of Emilia Romagna.

The Minister of Industry found this to be a good idea and less than 6 months later the Danish network program was introduced. However, in spite of the strong influence from the industrial districts in “Third Italy” the Danish program was changed in a way that made it quite different.

The strength of industrial districts is embedded in the regional culture that has been developed and restructured over many years, and it is not clear whether this structure can be imitated. As stated by Powell<sup>16</sup>, every municipality has been trying hard to build its own Route 128 or Modena; however, it has been a difficult task because it is hard to find and to replicate the dynamic and self-developing mechanism. The Danish Network program is an illustrative example of these difficulties.

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<sup>14</sup> Now the Danish Technological Institute.

<sup>15</sup> Hatch, R., 1988: Denmark in the Single/Global Market. Talk presented at Jutland Technological Institute.

<sup>16</sup> Powell, H. 1990: Neither market nor hierarchies: Network forms of organization, *Researching Organizational Behavior*, 12, 295-336.

Firstly it was difficult to copy the macroenvironment of the industrial district, such as the strong family pattern with family-owned, small, artisan enterprises, the long trade and export tradition, and of course the close relationship among the firms in the region.<sup>17</sup> Secondly, at the firm level the attempts to “create” long-term strategic networks in many ways contradicted with the Italian model, in particular the use of mediators or brokers was quite different. Lorenzoni and Ornati<sup>18</sup> have described the development of inter-firm networks in Italy in the following way:

Figure 1: Italian and Danish network models.

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<sup>17</sup> See e.g. Brusco, S. 1982: The Emilian model: productive decentralization and social integration. *Cambridge Journal of Economics*. 6, 167-184 and Piore, M. & C. F. Sabel 1984: *The Second Industrial Divide*.

<sup>18</sup> Lorenzoni, G. & O. Ornati, 1988: Constellations of firms and new ventures. *Journal of Business Venturing*.

In the Danish Network Program the training of brokers was an important part. The reason given was that the minister feared that the Danish entrepreneurs were by nature so independent that they were unwilling to participate in long-term cooperation. Therefore a number of brokers were educated, and again it was argued that the mediator or broker was a central part in the Italian model.

In the Italian model the leading firm would be dependent on selling the products of the subcontractors, he would start out with market-like relations in stage one, then intensify the collaboration in stage two, and try to make the subcontractors cooperate in stage three. From this network we would probably find spin-offs in various forms.

In the Danish model the major tasks of the broker was to find the firms and “motivate” them to cooperate. The firms should then create “the network firm” and the broker would leave them. The difference is quite clear. In the Italian model the mediator is dependent on the result of the network, whereas in the Danish model the broker was dependent on the number of network that he could create.

### **3. The Danish empirical findings**

During the last months a number of evaluations on the effect of Danish network programs have been published. These evaluations are based on interviews and questionnaires from participating firms. Such data will always be biased by the wish to please authorities, by other individual interests or by bad memory just to mention a few. The results tend to be a satisfaction index rather than anything else. This is not the place to whine over surrogate data. Instead we will present some of the results from these evaluations when addressing key issues concerning inter-firm networks. In the final section we shall revert to the question of how to improve our data on policy programs.

#### **3.1. The role of the external (vis a vis the network firms) mediator/consultant**

The evaluation of the brokers' participation is quite clear. They had a strong influence in setting up the network - they were doing all the paper work - but they were not capable, except for a few cases, of providing the network with competencies in operating it. That is, they helped in stage one and two, and then they disappeared. As a matter of fact only few of the participants could remember the broker. The result was either that the collaborative ties between the firms were intensified when they were on their own in stage three, as shown in figure one, or the network was stopped. The latter happened in the majority of cases.

As a consequence, the overall conclusion was that the broker education was expensive and there were no proven effect. Furthermore, it was found that the survival rate of networks initiated by brokers was lower than those initiated by the firms.

#### **3.2. Old friends or new relationships?**

How well should firms know each other before a network process can be started and completed successfully? We have strong indications from several evaluations that networks formed on old bonds seem more likely to survive. But what are we measuring? Is it simply that when a group of firms that have been doing business with each other for several years form a network arrangement, we find that they are able to continue cooperation "even with a public subsidy"? Or are we seeing that network processes formed among firms that had no or little prior knowledge are very hard to set up.

We have some indications of the latter. If we assume that networks formed by brokers consisted of firms that had less knowledge of each other than networks formed without the assistance of a broker, we find that firm-initiated networks are more robust than broker initiated ones. 3 years after the end of the program 71% of networks established without broker assistance were alive compared to only 33 % of those established with broker assistance.<sup>19</sup>

If we look at factors that were mentioned as important for the participation of a firm in a network

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<sup>19</sup> Ampion: Evaluation of the Danish network program, Appendix, p. 8, see below.

we find that “knowledge of one or more of the other participants” were mentioned third most often among 17 possibilities. Only “access to new markets” and “well defined targets for the network” were mentioned more often. This finding shows that old ties matter, but data cannot exclude that we are dealing with groups of firms especially focused on old ties compared to firms in general.

### 3.3. Legal structure

Another controversial development in relation to the Italian evolutionary network structure, presented in figure 1 was that the resulting network in Denmark should be a “legal entity”. It was argued that a legal structure - joint venture - would facilitate the long-term commitment and mutual adaptation between the cooperating firms.

For the major part of the participants the creation of a legal structure was seen as an unnecessary time-consuming activity that did not have any effect in terms of committing the parties. On the contrary it was argued that the firms involved felt uncertain about this “unnatural” setting. The result was that in those cases only peripheral activities were transferred to this new business unit.

Others had a more pragmatic view. It was just business as usual in a new form, and the advantage was that the SMEs actually looked like one large company, and this was important for large foreign customers. Furthermore, responsibility was more obvious to all the parties.

A fair picture of the firms’ attitude towards this new legal entity can be seen from the comparison of firms that were setting up networks without public funding. In this case only 39% chose to adopt this practice.

### 3.4. Types of networks

What kinds of inter-firm networks can be promoted via industrial policy (short-term/long-term, horizontal/vertical, development/operations etc.)?

As mentioned firms were asked which factors out of 15 that had been important for their participation in the network process. The results show some indications of the type of network that joined the program. The 9 most often mentioned positive factors and their results are listed below:

Access to new markets	80%
Well defined targets for the network	74%
Knowledge of one or more of the other participants	73%
Stronger international competitiveness	71%
Starting shared sales and marketing facilities	66%
Cooperation with one or more of the other participants	57%
New inspiration to firm development	51%
Stronger national competitiveness	46%
Need for new knowledge	41%

The 5 factors that did not matter at all or did not matter significantly are in ranked order:

1. The challenge from the European Single Market
2. Reduced production cost
3. Access to capital
4. Access to new technology
5. Improved distribution

From these data it is quite clear that the main target for the majority of firms within the program was to gain a competitive position in new markets. This was mainly related to existing products and products that could be developed with the competencies already at hand in the firm. This is inferred from the low value on “access to new technology” and a relatively low value on “need for new knowledge”. Unfortunately the data contains nothing explicitly on product development.

It is also quite clear that cost cutting was a nearly neglected target. Optimization of internal production and distribution were not essential issues. This relationship between the wish to boost turnover on export markets and the wish to gain knowledge or to carry out mutual product development was already seen in the midterm evaluation survey (Gelsing and Knop, 1991).

This is also an indication of the importance of distinguishing between horizontal and vertical networks - horizontal networks consisting of firms with similar activities and vertical network consisting on firms with different activities. Earlier results suggested that horizontal networks were harder to promote because of the potential cannibalism. What we find is a concentration on activities that will not have to test the potential competition between network members.

In the tourism program we found a similar result. Out of a total of 84 networks only 8 could be characterized as horizontal. Out of these 21 networks which finished or were active in phase 3 only 4 were horizontal. This indicates that the interest for horizontal networks within tourism has been relatively modest. It reflects the fact that the large majority of firms in (Danish) tourism are small, family-run, unprofessionalized and with economic constraints. Firms that never had the initiative and the resources to develop a special profile will tend to view horizontal cooperation as a threat rather than an opportunity.

In the Environment Program this was indicated as well. When firms were asked about their activities compared to those of the other network members only 2% (N = 91) were identical, whereas 56% were different.

It seems that horizontal networks which set out to harvest scale economies be it in purchase, production, distribution or sales/marketing, either do it without public grants or simply fear the potential competition so much that they do not bother.

### **3.5. Learning processes in inter-firm networks**

How should we describe the learning process that takes place within networks?

There is no doubt that the learning processes in SMEs were an essential purpose when the

programs were designed. The phase-model invites groups of firms to go through various steps in order to gain mutual confidence and trust to specify cooperative activities and perhaps form a new mutually owned business unit. This relatively long commitment was meant to spur learning processes, but Danish SMEs had other main challenges. Judged by the firms' stated motives, when they started a network process, the highest priority was to expand turnover, and they did not see learning processes as a main purpose.

If we examine the results a bit closer we find some indications of both commitment to participate in learning processes and the derived results. We also find indications that firms were focusing on gains in the short term. We will discuss these results in turn below.

On the positive side we find that:

66% claims that the network experience has positively affected the firm's wish to enter new network projects.

50% cooperates with more firms that they did 5 years ago.

40% claims that the network experience has had a positive effect on their position on new markets, the ability to undergo changes, management and cooperation with both Danish and foreign firms.

## 4. Concluding remarks

### 4.1. The Network Program as a best practice policy

The Danish Co-operative Network Program has been adopted, and interpreted around the world as a potential best practice policy.<sup>20</sup> Although the final evaluation is quite negative, we are not arguing that it does not have a potential. Obviously it depends on how you are measuring best practice.

The program was in many ways a coincidence. It should be seen as a response to the major problem: How could the many Danish SMEs possibly compete in the Single European market. It is difficult to tell whether this was a real problem or not. Although the origin was the Italian industrial textile districts, a misinterpretation caused a very different final set-up in the Danish program. It was never realized that it is difficult to create networks and that the reason is that sometimes they are already there. Several researchers have argued that the Danish textile and clothing industry is very similar to that of Modena<sup>21</sup> It is concentrated in a geographically small area where several hundreds of small competitors are found together with highly specialized private firms and public institutions. It was interesting that those firms were extremely reluctant towards the idea of formalizing networks in the first place. There was no need to make a network arrangement, it was argued. The specialized firms were already there. After a period of hesitation Danish textile firms also joined the program and began setting up networks.

If the measure of success is the number of survived networks, it can be argued that the network program was a failure. The evaluation states quite clearly that at best quarter of the total budget has been spent on networks that are still operating, and the result of the following Export Network Program seems to be discouraging as well.

However, the program certainly started something. Many firms were activated and have gained valuable experience by the collaboration. Maybe the form was wrong, but the idea was correct. It would be difficult to find a Danish firm that was unaware of the possible effects of a long-term cooperative arrangement.

We think that the major industrial policy implication is that it has been recognized that it is difficult to create “strategic networks”. But the firms involved have shown, we believe, that they know how to act strategically in a network arrangement.

Furthermore we have argued that the percentage of surviving networks after a few years cannot be even the most important criteria for success. The learning processes where networks

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<sup>20</sup> See e.g. OECD: Best Practice policies for small and medium-sized enterprises, 1995.

<sup>21</sup> See e.g. Kristensen, P. 1992: Industrial districts in West Jutland Denmark. In F. Pyke & W. Sengenberger (eds.) Industrial districts and local economic regeneration. Routledge; Hansen, N. 1991: Factories in Danish fields: how high-wage, flexible production has succeeded in peripheral Jutland. *International Regional Science*, 14, 109-132; Illeris, S. 1992: The Herning-Ikast textile industry. *Entrepreneurship & Regional Development*, 4, 73-84; Nielsen, K. 1994: The Sustainable Competitive Advantage of SMEs in Small Regions - A Resource Based View. Paper presented at the Strategic Management Society's Conference, Paris.

split up and participants form others better - suited to new circumstances are of equally importance however difficult to map.

## **4.2 Directions for future research**

We would like to stress that the findings in this paper are highly preliminary. We have access to data - hard (turnover, export, financial measures, number of employees) as well as soft (learning processes, motives, etc.) from more than 1000 firms that have participated in the four different network programs. Unfortunately, almost all of these data have just been collected this spring, and some of the findings have not been published yet.

We hope that this database will enable us to come closer to an understanding of all the aspects concerning internationalization in SMEs through cooperative network arrangements. We hope this will contribute to an understanding of the connections between business and the public policy issues.