Barriers to the survival of networks

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Abstract

In the paper Dissolution of Networks (Jørgensen 2003) a phase model for the dissolution process for specific types of networks was defined. Networks that are not centrally coordinated. The model was based on an analysis of the Danish potted plants industry that could be described as a network under pressure. Phase 2 in the model was called the dilution phase. It was characterized in that "the network has been under pressure for some time and the poor results have started to show".

For the past year, the Danish potted plants industry has been in this phase. Several of the members have had poor results and a distinct dissatisfaction with the network's way of functioning is a fact. Some members are leaving the network whereas others have taken a share in the work on rationalizing and developing the network so that being a member will become attractive again.

The objective of this paper is to analyse more fully the cooperation or lack of the same in order to identify the barriers that interfere with a revitalization of the network. The network has been studied closely in the period 2003-2004. Also, more analyses of the network's customer groups have been made, and the logistics system as well as the production and the competitive situation have also been analysed.

A special interesting aspect of this process is the attempt to implement supply chain management in the network. The idea of a coordinated management of the flow of products and materials from the producers to the final users in order to avoid suboptimization seems to be obvious to try to implement in a network of the type in question, in which logistics is decisive of the competitiveness. The attempt to establish a more coordinated control of the flow of products and materials in order to gain cost reduction in the network in general has, however, run into difficulties.

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Introduction: Development and dissolution of networks

Networks are established, they develop, and at some point they cease to exist. Among others, Håkansson and Henders (1995) and Hertz (2001) discuss the dynamic of networks that can differ from network to network. Håkansson and Snehota (1995) discuss changes in networks and why they happen. It is emphasized that the changes call for the individual companies in the network to plan for these and make decisions that support their objectives.

"In the management perspective the problem becomes one of how a company can cope with change in the network when it has virtually no possibility to predict with any accuracy any future state. Major issues for management are: how to assess and interpret the changes, whether the company is to absorb or promote changes, and how to handle it for its own advantage" (p. 270).

In the individual networks, the management problems will lead to actions that consequently may dissolve the networks because important members decide to discontinue their relations and leave the network. Managerial problems may also result in actions that consequently will strengthen or reconfigurate the network.

Literature does not describe much about how the different types of network members react on threatening changes in their environment. How and why networks cease to exist has only been poorly illuminated. See e.g. Harrison (2001), and Laine and Åhman (2001).

However, in the paper Dissolution of Networks (Jørgensen 2003) a more general phase model for the process in non-centrally controlled network has been defined – a model that is structured as follows:

1. Solidarity phase
2. Dilution phase
3. Dissolution and/or reorganisation phase

In the solidarity phase, the network is under pressure for instance because of the competitive situation and/or the structure development as regards customers and suppliers, but the network members are united and put up a joint front. Everyone is solidary and convinced that the network can bear and is efficient. Everyone has confidence in the management and the chosen representatives, who are expected to be able to trim the network and its functions to everyone's satisfaction. No one leaves the network.

In the dilution phase, the network has been under pressure for some time and the poor results have started to show. There is no longer the same confidence in the network's competitiveness and in the management, and some members have started to look for alternatives. One realizes that the network is off course and drops it while there is still time (rats leave the sinking ship). Thus, the network's difficulties increase and a cumulative effect is a fact. Other members, however, stick to the network, using all their energy trying to save it.

In the reorganization/dissolution phase, anyone can see that the network has no chance of existing as it is. Either the network dissolutes totally because no one wants to stay and try to make it work, or a small group of members decides to reorganise the network and participate in a reduced and

different network which is established under consideration of the new terms. It is assumed that a reorganisation demands both a considerable reduction and investments.

The various types of members will act differently in the above phases all depending on their possibilities and interests. The confidence in the network and the realistic alternatives will determine their behaviour. Gradually, some members, however, have engaged themselves deeply in the network and have taken on a managing role, whereas others are merely in and only contribute with what they are expected to while they reap the benefits of the network.

Purpose of the paper

This paper analyses more specifically the behaviour of the network's members in one of the phases – the dilution phase. The objective is to identify the barriers to revitalization of such a network. As mentioned earlier, some of the network members will work for the preservation of the network and for the network recovering its original power and thus meet the parties' interests. However, it is not an easy matter, and the various initiatives will encounter opposition of all sorts. It may therefore be that the network will find itself in the next phase in which it is dissolved or totally reorganized. By throwing more light on the various possibilities of this phase, guidelines may be drawn up for how to do a better job in other networks.

The study is based on empirical material from a Danish network under pressure in which tendencies of dissolution can be found. The network is within sale and distribution of Danish potted plants. Since the export of Danish potted plants amounts to about DKK 2,8 billion per year, the Danish government is interested in strengthening the export by promoting the Danish gardening sector's competitiveness. Therefore, the government supports an extensive research project – Fremtidens transportkoncepter (Future transporting concepts) – that is carried out in cooperation between Danish universities, the Danish Technological Institute, and the market gardeners' trade association (AfP). The University of Southern Denmark takes part in the ongoing project and this present material is from the project. Below, the network in question will be described – including its members and its structure.

Case: The network for production and sale of Danish potted plants

The Danish network for production and sale of potted plants is extensive and complicated, and it has been developed for a number of years. The production and development of potted plants take place in a number of market gardens (approx. 500) that vary in size whereas sales mainly is taken care of by sales companies and wholesalers. They are in contact with a large number of customers all over Europe (and to a moderate extent outside Europe). The most important markets are Germany, Sweden, England, France, and Switzerland besides the home market. Today, independent haulage contractors handle transport from the sales companies/wholesalers to the customers, but formerly it was handled by the sales companies/wholesalers themselves. The sales companies have experienced a thorough concentration and merger process resulting in the merger between the two largest potted plants sales associations in Denmark, GASA Aarhus (GAa) and GASA Odense (GO) to GASA Group Denmark (GGD). Managing 80% of the Danish potted plants sales GGD is altogether dominant. The wholesalers have also experienced a concentration process and so Bøg Madsen (BM) also plays a dominant role in this group.

Originally, the sales associations were established by market gardeners that became members of co-operative societies and with it owners with the purpose of taking care of the sales and distribution work that the individual market gardener was unable to attend to. The co-operative society has continued till today, but a couple of years ago GAa was converted into a private limited company and in connection with the merger, GO was also converted into such a company. Thus GGD is now a private limited company. However, the market gardeners still have the majority holding, and the board of directors consists of market gardeners.

Sales companies and wholesalers cooperate in the trade association, AfP, the market gardeners in another trade association, PjP. AfP and PjP have a superior trade association, DEG, in which mutual problems are discussed.

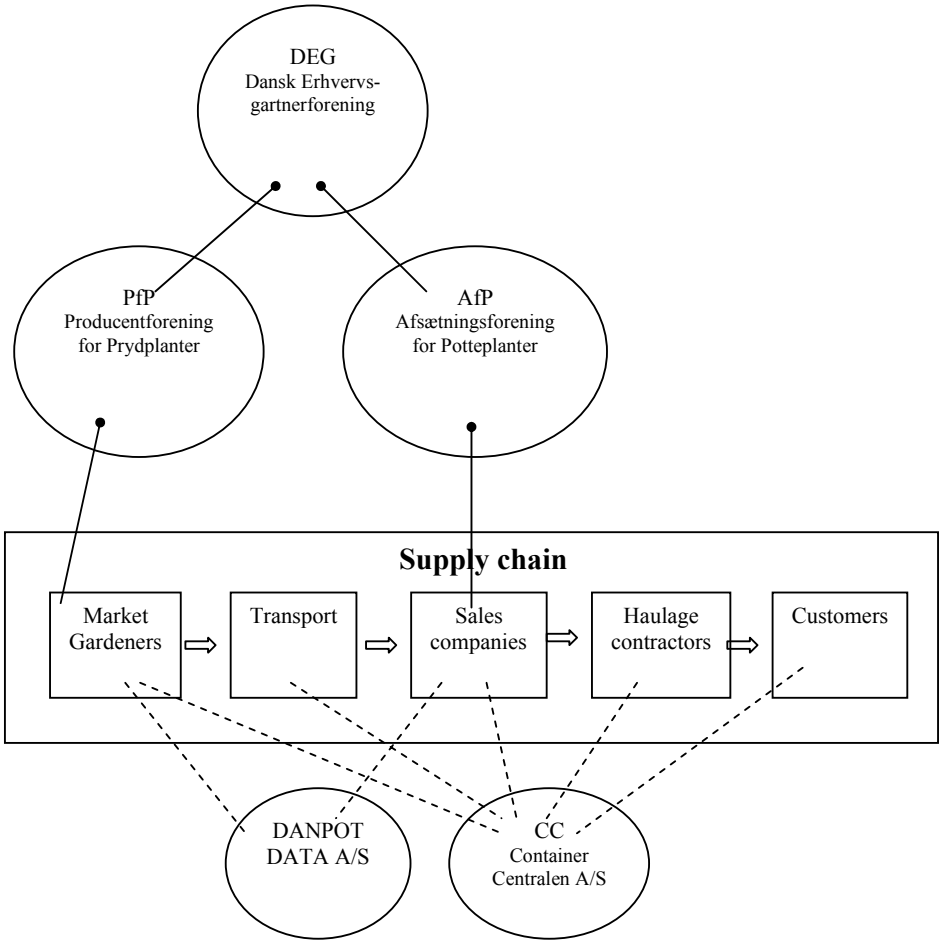
Furthermore, there are two companies that are owned by sales companies, wholesalers and market gardeners. One, Container Centralen A/S, produces, rents out and manages containers used by market gardeners, sales companies, haulage contractors, and customers when distributing potted plants. The other, Danpot Data A/S, which is owned by market gardeners and sales companies, registers market gardeners' supply and prices, for the sales companies to use for sales purposes.

The Danish market gardeners are also in a concentration process and at the same time they specialize in certain cultures. Thus, there is a tendency towards a small group of big market gardens specializing in popular plants, and a large group of smaller market gardens producing niche products.

An example is a merger between two large producers of potted roses in December 2001. The merged market gardeners produce 20 million potted roses per year. Their annual turnover is DKK125 million, and they employ 214 people.

Another kind of co-operation between big market gardens has also come into existence: a marketing co-operation. An example is joint marketing for 5 market gardens with an annual production of 30 million plants. The customers are contacted directly in order to draw their attention to the exact products of the market gardens.

The system is shown in Figure 1:



Naturally, the potted plants have a certain growing season and when they are ready to be sold, the market gardeners report the offered amounts to the sales companies. Every day, the seller contacts the different customers – wholesalers, chains, DIY centres, and garden centres etc. – in order to sell the plants at the stated prices, or at lower prices if necessary. When sold, the plants are transported from the market gardens – by various haulage contractors - to the sales companies'/wholesalers' storage rooms where they are sorted according to customers and geography. The same day the lorries leave for the various markets in order to reach their destination the next day or – in case of great distances - the day after. Independent haulage contractors transport the goods in refrigerated vans.

The customers distribute the goods to the various outlets. The plants are delivered in containers. The empty containers are returned to the sales companies and passed on to the market gardeners.

Case analysis:

1. The network under pressure

During recent years, the Danish network has been under a considerable pressure from its competitors, and the customers have assumed another character which has resulted in increasing buyer's power.

The Dutch are the most dominating competitors eating their way in on the Danish producers' traditional areas. The part of the customer's product range that consists of Danish products becomes less and less. At the same time, the Danish products become more and more specialized and bulky and thus the niche products disappear. The sales companies therefore have to buy elsewhere in order to offer a full product range.

Today, more and more chains buy and forward to their own distribution centrals themselves. The chains want to buy a great many plants to agreed prices - prices agreed upon with the producers – and they focus on a limited basic product range with many particular items.

The development in the intermediaries in the individual countries is clear. The number of wholesalers is falling off and so is the traditional specialist trade. Sales in garden centres and groceries trade, however, are progressing. Further, there is a clear tendency to increased chain formation in both the groceries trade and in DIY centres, and in specialist trade, which of course makes the individual customer more important and thus, more powerful.

The trends can be summarized as follows:

1. Fewer wholesalers and flower shops
2. More powerful chains within all trades
3. Grocery shops are becoming more important
4. The competition from Holland is growing

If these trends are combined with the development within the Danish market gardening sector with fewer, more specialized, and bigger market gardens, a picture of a considerate strategic threat for the sales companies is clear, that is to say a threat of direct distribution from market gardens to chains - something that will put pressure on the sales companies more and more. If the chains to a wider extent contact the big market gardens and take care of logistics themselves, the ground is moving under the existence of the traditional sales companies.

A consequence hereof has been that GGD has had poor economic results (losses), and that more market gardens are now in financial difficulties.

If you look at how the various members of the network react to the threats and especially to the dominant sales company's economic problems, three types of reactions can be identified:

1. Opportunistic actions
2. System preserving actions
3. Actions of frustration

A number of the large market gardens are able to deliver a large part of their production directly to big customers and to leave the smaller deliveries to the indirect system. Thus, they contribute to the weakening of the economy for the rest of the network, at the same time as they ensure themselves a marketing system in case the network should dissolve. They do no longer feel obligated to support the network because they are no longer members and thus owners. As they have grown and are able to carry out more functions themselves or in cooperation with other large market gardens, it is easier for them to discontinue their membership of the network. It is, therefore, characteristic for this group of large market gardens that they feel they have to become more professional as regards logistics and sale in the coming years. One uses the network as long as it is there, and as long as one can see the advantage of doing so, but one does not do anything actively to preserve it. This behaviour is very much in accordance with Alderson's definition of an organized behaviour system:

"In an organized behaviour system the organizing element is the expectations of the members that they as members of the system will achieve a surplus beyond what they could attain through individual and independent action" (Alderson, 1965, p.25).

The dominant sales companies' poor economy may be improved by reducing the sales and logistics costs, and by making the network more competitive altogether. Therefore, the board of directors of the sales and trade associations started a number of analyses in order to make the system more rational. Can the coordination between transports from the market gardens to the main loading points be improved? Can the IT systems be improved? The motive forces behind these initiatives are those market gardeners who still own the sales company and who still feel that the network is the most effective way of distributing potted plants.

Some of the network members' actions may be due to the fact that a number of market gardens do not have other distribution channels than the sales companies, and they realize that their subsistence basis disintegrate if GGD's economy is not improved. This fact has resulted in severe criticism of the company's management and especially of the managing director. The management does not seem to be efficient and has not been able to reap the benefits that were held in prospect, when the two largest sales companies merged to GGD. For instance, a market gardener has supposedly stated the following to the press about the managing director:

"He is incredible inspiring in a board, but one must realize that he is not the born managing director. Gasa Group's earnings and sales drop, and everything seems to fall apart".

Also GGD's employees are frustrated by the development. They react by complaining that the customers do not appreciate the service rendered to them, although it – according to the employees themselves – is better than the service provided by the competitors. They also complain about the largest Danish wholesaler (BM), who has taken over some very important British customers. Further, they blame the suppliers for not behaviouring properly. I.e. they do not meet the deadlines that are set for delivery to the main loading points, which increases the costs and lowers the customer service.

Thus, it has been demonstrated that a network under pressure brings different actions. The reactions seem to depend on how close ones affiliation to the network is, how one assesses the network's efficiency and future, and what alternative possibilities one has for marketing one's products.

2. The dilution phase

By the summer 2003, the network had been exposed to pressure for a while and the situation had not improved – on the contrary. In the meantime, the various working groups continued their work and so did the various independent units.

From then to April 2004, the situation has been further aggravated, i.e. the pressure on the network has increased and is now in the actual dilution phase. In 2003, GGD had a loss of more than DKK 50m. The managing director and the logistics manager have been replaced and two sales directors have been discharged. Furthermore, changes have been made in the whole organization. The problem is that discharged personnel that get employed elsewhere take with them their customers and so sales drop. Some market gardens are in financial trouble and are facing closure. The concentration of market gardens has continued and the product programme consequently reduced. The export of potted plants has dropped.

The opportunistic behaviour has been intensified. Increasingly, the market gardens supply their products to auctions in Holland, and more and more are sold to the chains through framework agreements. Dissatisfied employees from GGD have set up a new sales company, which has resulted in an increased conflict between the sales companies.

However, the network preservative activities have been continued. Firstly, two surveys of customer satisfaction have been completed in order to analyse the Danish sector's competitive position compared to the Dutch. Secondly, analyses have been made in order to improve the Danish logistics system – both as regards structure and operation. So, the network preservative activities have first and foremost consisted in producing information that can be used as a basis for decisions when to initiate actual reinforcement of the network. In this way, instructions as to how to strengthen and preserve the network could be obtained; putting an end to the opportunistic behaviour and leaving all the network members to be convinced that the network be viable; that it would be to their advantage to stay on as members and help make the network work better.

The customer surveys – what are the results?

As mentioned above, the information producing activities have been two customer surveys. The selected customers in Germany and England were interviewed about their suppliers and especially their satisfaction with these. The objective was to get certainty about how Danish sales companies are evaluated by their customers compared to the Dutch and the local (national) suppliers. The result was to make basis for improved actions in the export markets. Within which areas should actions be improved and what is important for the customers when it comes to their suppliers? Would it be possible to identify some core competences? The results of the two surveys were fairly unambiguous, but also rather useless with regard to initiating activities that are to improve the competitive power.

When comparing Holland and Denmark directly in different competitive parameters the following came up:

- Product range:

The Dutch product range is broader than the Danish and is entering areas in which the Danish production traditionally has had the upper hand. The customers can get their demand covered in Holland, which is considered to be a decisive advantage.

- Dynamics and adaptability

The Dutch production and export are growing and the Dutch are now starting to grow their potted plants in greenhouses that have previously been used for other purposes. The Danish adaptability consists in concentrating the greenhouse areas on fewer and fewer market gardens. This further reduces the product range. So, one must consider the Dutch industry more dynamic than the Danish.

- Logistics and delivery

The customers evaluate the Danish distribution to be better than the Dutch. This goes for almost all elements in this category. The Dutch also consider the Danes' close cooperation in the supply chain an asset.

- Quality

The quality of the Danish plants is evaluated to be better than the Dutch of the same kind.

- Sales efforts and communication

When it comes to sales efforts and communication, The Danish sellers are evaluated considerably more positively than the Dutch.

- Costs, efficiency and prices

The Dutch level of costs is lower than the Danish and the efficiency seems to be greater. The customers assess the Danish prices to be higher than the Dutch prices. Especially, the Dutch are better at adjusting their prices to the market.

- Geography

There is no doubt that Holland is geographically better placed than Denmark. Holland is closer on important markets and it is easier for the customers to get in contact with the Dutch suppliers and have a good look at the offering.

Not much can be concluded by comparing two competitive industries - factor with factor. When customers are to decide what suppliers to choose, every factor comes into play. Immediately, it is obvious that the Danes are good at selling the existing product range to their present customers. The Danes are reliable and keep the delivery terms. Further, they grow plants of high quality. But the question is if this is enough to be successful in the European markets in the future? The Danes' competences do not seem to be that important for the majority of the customers. The survey shows that the European markets do not intend to increase buying from the Danish suppliers, and so the survey is rather frustrating than encouraging. Because what is there to be done now? Can the Danes reverse the situation or is it totally impossible? Obviously, they cannot continue in the old groove.

Logistics and Supply Chain Management

Logistics – the actual product flows and their control – has always been a common feature in the network and its efforts to develop and stay competitive. In this phase, therefore, the product flows have been analysed. Would the network survive if logistics were improved?

First and foremost, the analyses have dealt with shared transportation from the market gardens to the sales companies and with the establishment of a shared distribution centre, whereto all Danish potted plants are to be delivered and from where they are to be distributed to the various European markets. Also, transport planning and administration of the containers, in which the plants are delivered, has been worked with.

If you look at the system, as shown in Figure 1, it seems to be natural to employ Supply Chain Management (SCM). SCM is an integrated control of product flows from suppliers of raw material to the end users (regarding SCM, see e.g. Christopher 1998 and Stock and Lambert 2001). Admittedly, the Danish potted plants industry do not deliver plants to the end users, but nevertheless, an integrated control in order to avoid suboptimization ought to be possible as the industry has a vertical network.

The analysis of the transportation from the market gardens to the sales companies (simulation from large data quantities) shows that the possibilities of a better utilization of the transportation capacity – and thus net savings – are good if the control be more powerful. However, there is no direct indication that consensus on implementing a more powerful control can be reached. The fragmented and loose network seems to be powerless. Independence is insisted on, although it could benefit the whole industry to sacrifice it.

The analysis of whether or not a shared distribution centre and shared transportation would be a good idea is not yet completed, but the idea itself seems to have stroke a chord with GGD. However, the problem is money. In connection with the organisational changes, the new management has announced that it intends to sell the two existing distribution centres and establish a new one on a more optimal location. GGD expects the project to be realizable within 3-5 years and the other sales companies are invited to take part in the project. GGD stresses that this is the optimal solution for the whole industry. The questions are: Will the others give up their own distribution? Is it possible to raise funds? And will the long time frame lead to the industry finding other solutions in the meantime and thus dissolve the network?

With regard to more operational improvements, e.g. as for transportation planning and handling of containers, consensus can be reached. As everyone will benefit from these actions, they can be implemented. SCM, however, seems to be much more difficult to implement in a network that is not centrally controlled.

Barriers to revitalization

Looking at these network preservative activities one must note that first of all they are information producing and therefore uncontroversial. No decisions have been made and no actions have been taken. Discussions and analyses have been made while time has passed by without any final actions have been taken. The network resembles a debating society where differences are outlined – all the

while the opportunistic behaviour has gone on. A shared strategy for developing the network is needed, and so is cooperation about developing the product programme and implementation of a cost-cutting structural change of the value chain. Without these elements, the network will continuously dissolve.

Apparently, the network cannot cooperate despite the economical benefits it should be given. The danger is the competition from abroad – especially the Dutch suppliers. But instead of increasing the competitive power, the Danish sales companies work against each other. Because there is no central decision maker, the whole industry and its network is dissolving. Perhaps united efforts could prevent this from happening.

Based on the above, the following barriers can be identified:

- No prime mover to make decisions and implement binding actions
- No consensus on what is the best strategy, i.e. no shared goal
- No financing of large shared investments
- Frustration and lack of optimism.

It is interesting if the network turns out to hamper rather than help in such a situation. Perhaps, the loyalty towards the network hampers the dynamics in the industry when it comes to implementing solutions that are better than to stay on in the network, trying to make it work. Perhaps some of the network members would be better off outside the network, but because they are loyal they stay on and try to make it work.

Conclusion and further research

This paper analyses a network in the dilution phase, and a number of barriers to survival has been identified. Both opportunistic and network preservative behaviour is present and it is difficult to foresee if the network will dissolve as a result of the external pressure and the opportunistic behaviour or if revitalization will succeed. The various barriers, however, indicate that the dissolution will become more and more distinct in the future, and that the next phase will be a fact – the dissolution and/or reorganization phase. One conclusion could therefore be that networks are self-destructive under certain conditions. The analysis also shows that SCM cannot be employed because of the barriers already mentioned. The conclusion is that this type of integrated control of a system's trade flows needs a more centrally controlled system in order to be implemented.

The case and the phase model do of course only shed a scanty light on the behaviour in networks that are under pressure and in danger of dissolving. Other cases, describing other types of networks, are to be taken into account and analysed in-depth. Networks that vary as regards trades, level in the value chain, extent of solidness, extent of central control etc. This will provide more knowledge of decision processes and how to adapt to environmental pressure.

More knowledge will give the various types of decision makers a better possibility to predict the development and the member groups' reaction patterns. They will be able to assess if the pressure is temporary which will probably extend the network's viability. They will also have a better chance of identifying dissolution tendencies and indications of this, and they will be able to set scenarios of alternative networks.

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