COMMENTARY

Starting Up a Strategic Network

Hans H. Hinterhuber and Andreas Hirsch

VA TECHNOLOGY—A EUROPEAN EXAMPLE

Competition and cooperation are the two central forces of today's business world. The balance between these two forces seems to have shifted somewhat toward cooperation in recent years. However competitive an industry appears to be, it always rests to a certain extent on a foundation of shared interests and mutually agreed-upon rules. Competition does not take place in a jungle, but in a society where individuals, groups, and organizations depend on each other and also serve each other. Business life, quite contrary to the 'everyone for himself' attitude, is to a large extent cooperative. Within the bounds of mutually shared concerns competition is then possible and most likely (Hunt and Morgan, 1994).

Cooperation in the economic landscape can be applied in a wide variety of cooperative arrangements. Joint ventures, strategic alliances, cross-licensing, vertical integration, etc., are only a few types of cooperative activity. Strategic networks are just another way by which firms may cooperate, though an increasingly popular one.

A strategic network can be defined as the coordinated cooperation between several legally and formally independent enterprises that promote long-term strategic cooperation. Companies join and position themselves within such strategic networks in order to gain or sustain a competitive advantage vis-à-vis their competitors outside

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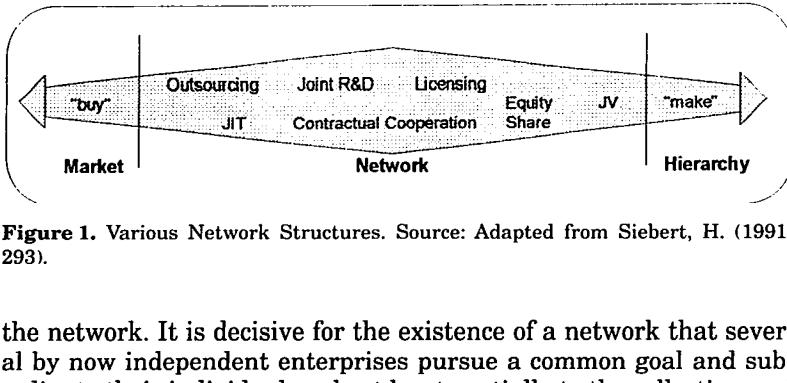

Figure 1. Various Network Structures. Source: Adapted from Siebert, H. (1991: 293).

the network. It is decisive for the existence of a network that several by now independent enterprises pursue a common goal and subordinate their individual goals at least partially to the collective goal of the network (Sydow, 1992: 79; Siebert, 1991: 293).

Thorelli (1986) sees strategic networks as something between markets and hierarchies. Multiple strategic alliances, a divisional organization or subsidiaries might be forms of organizations constituting a network. It is also possible that within a network various forms of cooperation can be found at the same time. Figure 1 shows some more forms of cooperation that could possibly constitute a strategic network.

The best visual image of a networking organization is probably a wheel (as the one given in Figure 2) rather than a pyramid. The wheel's spokes are so-called knowledge links between the core organization and a number of strategic partners around the rim (Badaracco, 1991).

Hinterhuber and Levin (1994), besides identifying strategic networks as the organization of the future, compare the network design with a client-server organization known from computer networks. Thereby, the core firm acts as a server and coordinates the network.

The increasing interest in networking has several reasons. Due to the increasing complexity of modern technology, of markets, and of government–business relationships, efficient solutions to problems are calling for resources greater than those at the command of any single firm. Therefore, even large multinational groups with a solid financial base and outstanding management expertise may decide not to go it alone. They will seek to build up relationships with other companies, whether these be public or private, suppliers, distributors, or even competitors.

Obviously networking may involve a variety of parties with backgrounds that sometimes vary widely, concerning management practice, marketing strategies, form of organization, etc. It follows that participants in a strategic network must see this cooperative

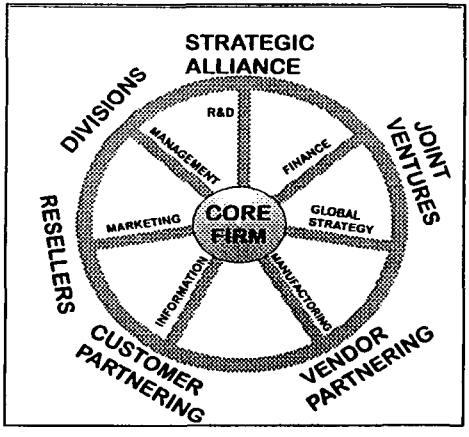

Figure 2. A Networking Organization. Source: Webster, F.E., Jr. (1992: 9)

arrangement as a means of reaching key goals, and thus the network can be described as strategic. Furthermore, intensive and ongoing communication between the partners is also required before a business relationship can really qualify as a strategic network (Thorelli, 1990: 74).

MOTIVES AND OBJECTIVES

Networking firms may have numerous motives for entering or building networks. Simply put, there is always tremendous cost and risk when a firm is creating its own distribution channels, logistical network, manufacturing plant, and R&D function in every key market in the world (Hutt and Speh, 1995: 236). (Potential) network members therefore will have one or several of the following motives to enter or build a network.

Foreign Market Entry

Networks can provide bridges to foreign markets. The possibility to mobilize other companies in the network to support one's internationalization intentions is a core motive when participating in a network. Drawing on the existing experience of a network partner will be a tremendous support for any firm attempting to go international. According to the industrial network approach, internationalization of firms means establishing and developing network positions in foreign markets (Axelsson and Johanson, 1992: 218).

Risk Reduction

Network cooperation can reduce a partner's risk by (1) spreading the risks of large projects between two or more companies in the network, (2) enabling diversification of the product-portfolio, and (3) enabling faster entry and thus payback (Contractor and Lorange, 1988: 11). An example in which resources have been pooled in order to reduce risk is the Anglo-French Concord project.

Economies of Scale, Rationalization, and Synergy

Economies of scale can be gained by combining manufacturing, R&D, or marketing activities of numerous firms in the network. "A good example is the manufacturer who, by intense networking with a few suppliers rather then spot buying from a lot of sources, obtained very significant scale economies in the purchase of the components he needed" (Thorelli, 1990: 79). Rationalization can mean that, for example, certain components are no longer produced in different locations, but production is transferred to low-cost locations. Synergy in a network of, say, five companies can be frankly explained by the unequation: $1 + 1 + 1 + 1 + 1 > 5$.

Increase of Market Share

Network members may be interested in building market share. This could be achieved by standardizing their products or services in a distinct way from their competitors, and thus collectively winning market share from competitors. Obviously, compatibility standards can most effectively be established by a large number of participants. Even if the actors in the network are vertically positioned along the value chain this might be a core objective of the strategic network. For example, the suppliers of a car producer will be interested in his ability to increase its market share, as their growth is directly related to it.

Access to Technology and Patents

Firms in LDCs are often extremely keen on entering international strategic networks with foreign firms, because of the access to state-of-the-art technology they can gain by such arrangements.

Nevertheless technology transfer is also a main reason for forming networks in industrialized nations, due to constantly rising R&D costs and the need for a broad base of technology in order to survive in increasingly competitive markets, where a technological advan-

tage can be eroded virtually overnight. By pooling know-how and patents each partner contributes a missing piece. A superior product is then to be expected.

Acquisition of Information

Business relationships within strategic networks might be the information channels most widely used by participating firms. Acquisition of information about foreign business opportunities is one of the top priorities in international management. Thus, the company network can be useful as an immediate source of international business opportunities. Other companies in the network are likely to pull partnering firms with them when going abroad or when getting involved in international activities.

Coopting or Blocking Competition

Potential or existing competition can be coopted by entering or forming a network of cross-licensing agreements with competitors. This can be seen as both an offensive and a defensive strategic move, as on the one hand competition between the networking companies is reduced, and on the other hand competition with firms outside the network will become fiercer.

Fashion and Fear Motives

Given the tendency to coopt competition, "the fashion and fear motives cannot be excluded as driving factors. As companies see more of their competitors being active in this regard [forming alliances], it is hardly surprising that they follow suit (Devlin and Bleackley, 1988: 20).

Governmental Influence

Governments have also been responsible for encouraging cooperation between enterprises. One of the most notable programs is probably the Airbus program. Supranational organizations play an important role too. The ESPRIT (European Strategic Programme in Information Technologies), for example, promotes cooperation in IT to provide European IT industry with the technologies needed to meet competition with the United States and Japan (Devlin and Bleackley, 1988: 19–20).

Another example is NATO, which prefers weapons systems to be developed by multinational consortia, whereby countries can partici-

pate in the manufacturing of parts through a cooperative network (Contractor and Lorange, 1988: 14).

THE OTHER SIDE OF THE MEDAL—POSSIBLE DRAWBACKS

Numerous motives for building strategic networks, and thus advantages perceived by participating firms, have been addressed. "But everything cannot be sweetness and light, or we would see nothing but networks around us!" (Thorelli, 1986: 81). Indeed, strategic networks bring along disadvantages as well, and a word about what networking cannot do has to be said.

Firstly, being part of a network does not compensate for fundamental weaknesses. A firm that cannot add value to the network in return will not receive any. If one actor tries to sponge on the network, other members are most unlikely to be tolerant. The weak knot in the net will soon see its position deteriorate to nothing more than a formal, reactive, and uninformed player, unable to draw benefits from the network.

Next, a fact that deters companies from structuring a strategic network may be the often very long period needed for establishing a working network. It can take months—a major hurdle for those that need fast turnaround in product development for immediate market entry. Other drawbacks are asset specificity with no realistic use for others, high transaction costs, opportunism (one party making use of information in its own interest and at the cost of the others) uneven distribution of power, and possible changes in strategies and priorities of partnering firms.

An overall benefit/cost analysis of a strategic network, however, will in many cases be difficult. Therefore, the all important question for top executives will simply be to decide between a good and a bad network. If undecided, one must at least keep the emergency exit clear!

STRATEGIC NETWORKS—BETWEEN MARKET AND HIERARCHY

Strategic networks are just one possibility of improving or changing a firm's competitive position. Before choosing the network route it is essential to have it analysed in the light of the company's overall corporate objectives and other strategic alternatives. The strategic implications of a network are most important to the firm. It allows the

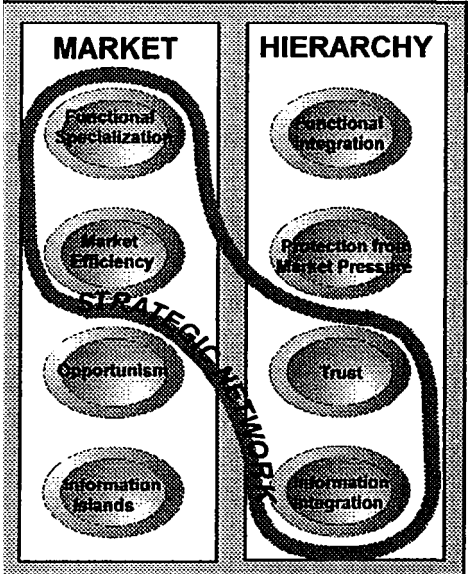

Figure 3. Characteristics of Networks. Source: Siebert, H. (1991: 295).

firm to concentrate on those activities in the value chain that are essential to its competitive advantage. Therefore, it is inevitable that senior management is involved in all stages of the network process (Devlin and Bleackley, 1988: 18–23).

Siebert (1991: 293–298) describes networks as a combination of market and organizational mechanisms, due to their partially market oriented and partially hierarchical character. Figure 3 lists the main characteristics of both the market and the hierarchy, whereby the characteristics also valid for strategic networks are marked. Thus, as in a free market, companies should specialize on certain functions and market forces will create efficiency. But instead of opportunistic behavior, trust must be built and information continuously exchanged.

After considering all the advantages and disadvantages strategic networks offer, a firm may decide that networking is a favorable way of doing business. However, this is only the starting point of a long process, with many decisions to be made. Suitable partners have to be found, the firm has to judge whether itself and potential partners have the qualifications for effective networking, and bonds must be built. Once established, progress has to be monitored and the firm's position in the network reconsidered continuously.

REQUIREMENTS FOR FORMING A STRATEGIC NETWORK

Efficiency and Effectiveness

The conditions for the existence of stable networks are the same as the conditions for the existence of any for-profit organization, namely efficiency and effectiveness (Jarillo, 1988: 36). No corporation will in the long run survive if it is not efficient and effective. The same holds true for strategic networks. An effective network allows the participating organizations to achieve a desired end. The basic condition for efficiency is that the gain to be gathered by being part of the network is superior to the profits that can be achieved without the network. Efficiency and effectiveness are thus the basic conditions for the existence of networks.

Overlap in Domain

Another most important requirement for a network's existence is at least partial overlap in domain (Thorelli, 1986: 445–446). If there is a total overlap we speak of head-on competition, but there is still some room for networking. However, division of labor and synergistic network opportunities are more likely to arise when the overlap in dimensions is less then complete. Nevertheless, for a network to emerge and remain stable there must be a certain minimum of domain consensus between the participants.

Time

"The relationships between organisations in the network take time and effort to create, maintain, and develop" (Mattson, 1985: 265). This must be considered when investing in relations with other organizations in the network. As with any investment, participation in a network will not yield benefits immediately.

Fairness

Each partnering organization should perceive the contributions to the network made by each member as balanced. As the network then hopefully creates increased value and profits, there is a cake to share between the members. This calls for the development of fair sharing mechanisms.

Trust

Trust instead of opportunistic behavior is another critical component for the smooth and effective functioning of the network. In an at-

mosphere of trust, problems will be solved more efficiently, as information is exchanged freely, and more solutions to a given problem are explored, since decision-makers do not feel they must protect themselves from the others' opportunistic behavior.

Exchange of Information

Information can be seen as the common currency of strategic networks. IT therefore plays a central role in the construction of a network. Especially in international management communications frequent exchange of information and opinions is vital, because of the usual absence of daily face-to-face contacts.

CHOOSING PARTNERS

A firm that attempts to get involved in networking must undertake an in-depth search for the right partners. One will naturally try to gain control over some critical resources; however, it needs to be assessed whether potential network partners offer interesting long-run possibilities, as divorces can be costly. Thus, 'fit' in a strategic network is of central importance and a number of questions have to be answered:

Do the partners have the resources and skills that the network will require to succeed?

To create a specific role in the network the company needs to possess a certain capability that is of value for the network. In a strategic network these capabilities are related to various kinds of resources like equipment, personnel, marketing skills, a sales network, etc.

How many companies should participate?

Which roles should be taken?

The more partners there are in a network, the greater is the potential for organizational complexity. This complexity will be felt by the managers responsible for the network, as a strategic network mostly will be managed jointly by one representative of each partnering company. All these managers will expect to be involved, to a greater or lesser extent, in the decision-making process. Thus, unless each partner has a well-defined role and sphere of influence, the network can be quite unmanageable. It may therefore be useful if one or more partners agree on playing a relatively passive role. The more actors see themselves as having an equal role in managing the network, the more organizationally complex the network will be. Shared decision making needs more communication and is likely to be time consuming and difficult.

Can trust be created?

If the partners in a strategic network have previously worked together and established a degree of trust, the danger of opportunism is likely to be less than it otherwise would be. In some cases neither party is willing to let the other play a dominant role in any area although they may have superior skills.

What are the partners' rationales?

It is unavoidable, when choosing amongst potential partners, to view the network from the perspective of these partners. What will the partner's strategic position be as a result of the network? Why does he want to enter into the network? Which weaknesses can he strengthened through the network?

These are the questions to be considered in order to have a better understanding of potential network participants' objectives.

Do we have differing organizational cultures?

Corporations (especially those from different countries or industries) vary in the way they do business and go about solving problems. Partners may not use compatible systems and may have differing organizational decision structures. These differences in the participants' organizational cultures need to be considered!

A CHECKLIST FOR SUCCESS

Much has been said about the prerequisites for building an effective and efficient network and especially about how to choose one's partners. Summarizing these findings the following checklist for building a successful strategic network has been developed. Figure 4 shows the route to a successful composition of a strategic network. The most important steps are described briefly:

The first critical issue is the identification and definition of the network's goals and core competencies that each partner brings to the network, as well as the synergy between these different contributions. Then, an agreement on congruent goals that will unite the partners to a strategy compatible with all organizations involved can be made.

Each participant must bring sufficient resources to the network, as the potential for learning from partners is obviously to a large extent dependent on the size and quality of the resources devoted.

Only high quality staff should be recruited and appointed for the network's management. Such employees may need to operate in a mixed-nationality environment and have the necessary language skills. Being chosen to work for the network should be viewed as enhancing a person's career prospects within the firm. It will thus in-

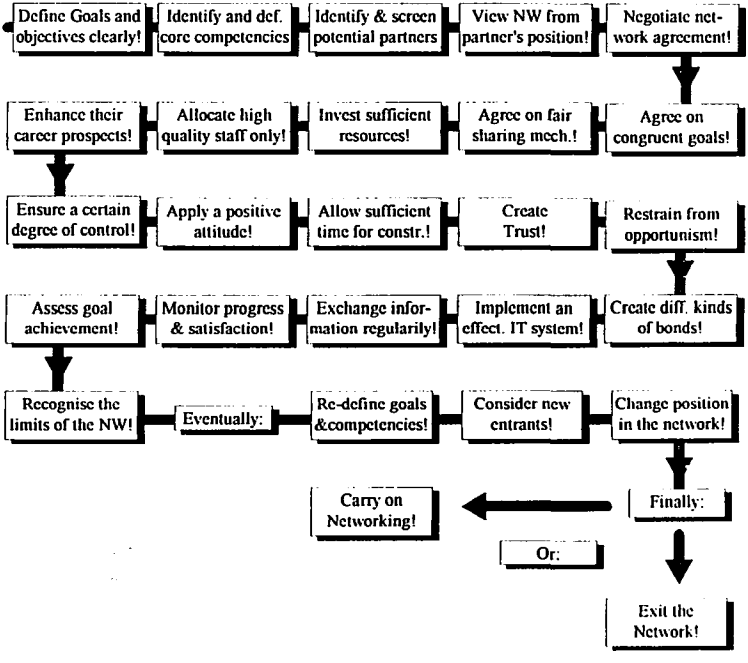

Figure 4. Checklist for a Successful Strategic Network.

crease the individual's motivation toward the network and improve the likelihood of success.

When entering into a strategic network in which success is crucial to the overall core business strategy, it seems important to be relatively certain that one can retain the necessary degree of discretionary control over one's critical strategic resources.

Furthermore, apply a positive attitude toward the network and allow sufficient time for establishment! "As in any marriage, the long-term stability of a network is based on mutual advantage. That is, the relationship must be a positive-sum game for all partners, what is often called a win–win situation. In effect, we are no longer just buyers and sellers—we are *partners!* Like any marriage, too, network stability also requires an element of trust" (Thorelli, 1990: 82).

But how can trust be created? These suggestions have been made by Jarillo (1988: 37):

- Firstly, one must carefully choose partners one can *relate to,* i.e. with similar values.

- Secondly, one cannot expect blind trust if it means that network members put themselves at a high risk. Thus, trustful behavior can only be created by showing the partners that they would have been worse off in the past if they had behaved opportunistically.
- Finally, it must be emphasised that a strategic network is a long-term relationship. Participants will behave correctly, although in particular circumstances they could gain from opportunistic behavior, if they recognize that such behavior would destroy the more valuable reputation of the firm and consequently its network position.

However, perceived advantages and the willingness to invest in building the network is not enough to ensure its long-term viability. We also need bonding and communication. The term *bonding* here refers to the establishment of social and professional contacts as well as personal friendship between executives and experts of all network member organizations. All levels have to be involved as interaction between partnering organizations has to occur at the top management, the project, and the operating levels.

Bonds—links of different type and strength between organizations—are to be built (Mattson, 1985: 263). Thereby legal bonds (e.g. contracts) are highly visible but may be less binding than more informal ones. Technical bonds derive from the characteristics of the products and services exchanged. Firms may adjust products (e.g. design) and processes (e.g. JIT) to their partners' requirements and also acquire technical knowledge from each other. "Social exchange has been identified as a significant factor in the overall strength of interfirm relationships" (Axelsson and Easton, 1992: 12). Social bonds can often be a substitute to written contracts as they may better withstand forces operating against the network.

To make sure all participants have the same level of information at any time an electronic integration of data and information systems must be established (Hastings, 1993: 23).

Extensive information networks, allowing direct communication from place of work to place of work of all staff involved in the network management (possibly world-wide), must be created. Putting PCs on the desks of all employees in all locations and connecting them together will allow the drastic expansion of the potential for interaction and interdependence by using e-mail, fax, digital telephone services, videoconferencing, and much more.

Finally, progress of the network has to be monitored and goal achievement assessed. Also, recognize the limits of strategic net-

working. Eventually one will have to redefine objectives and competencies over time. Entrance of new firms is to be considered and might change the firm's position in the network. At some point of time one may even decide that participation in a certain network is no longer favorable and thus will leave the network. However, having carefully applied the given checklist for success, this option hopefully remains unlikely!

VA TECHNOLOGY AG

VA Technology AG with group sales of approximately 2.2 billion US$ and 15,700 employees in 1995 is Austria's leading technology group. With a successful record of over 700 completed projects VA Tech is regarded as a highly skilled turnkey project manager. Its specializations are high technology steel plants, power generation, and electrical systems. The corporate strategy is to strengthen and grow core business as well as balancing risk in the business and regional portfolio. The basis for success should thereby be:

- innovation management
- global management, and
- network management.

The VA Technology group can be understood as an accumulation of various interlinked networks between the group companies. Through its network of related companies and suppliers VA Tech attempts to connect existing competencies and technologies, create comprehensive system solutions, and develop additional business opportunities. The ability to successfully manage a multinational and multifunctional network of companies, sub-contractors, and joint ventures is understood to be a key factor for growth. Managing these networks has thus become a central issue for all of VA Tech's executives in order to achieve a constant growth of turnover and profits. Furthermore, these inter-company networks should ensure that VA Tech's manifold subsidiaries pursue business strategies that are consistent with all of the groups business units and the group as a whole.

VA Tech as an international group mainly consists of five major group companies:

1. VAI (VÖEST-Alpine Industrieanlagenbau) is one of the world's largest metallurgical engineering companies, supplying systems for single processes as well as integrated plants.

2. AE&E (Austrian Energy & Environment SGP/Waagner-Biro GmbH) is Austria's largest supplier of thermal energy generating systems and environmental technology systems.
3. EEV (Elin Energieversorgung GmbH) is Austria's leading energy engineering company and an international system supplier of hydraulic and thermal power plants and energy distribution facilities.
4. VA MCE (VÖEST-Alpine Machinery, Construction and Engineering GmbH) is an international system supplier in hydraulic energy generation, steel structure, and engineering services.
5. The holding company formed out of EEA (Elin Energieanwendung GmbH) and EBG (Elektro Bau AG) manages the business of two internationally oriented system suppliers in the application of electrical energy.

Furthermore, three smaller companies specialized in distribution (VA Tech International), information technology (AII—Applied Industrial Informatics), and finance (Project Services GmbH) are part of VA Technology. The group is held together by a strong holding company. Figure 5 visualizes the company's structure with the group companies' logos.

Energy generation, environmental engineering, and energy distribution are core businesses for four of VA Tech's group companies. These companies (EEV, AE&E, VA MCE, and EBG) form the so-called "group area energy and environmental engineering." As these markets are mainly influenced by investments by the world-wide energy sector, a roughly identical group of customers can be addressed by these products and services. Thus, in order to strengthen and grow core businesses of the group area energy and environmental engineering the four group companies are coordinated within strategic networks. Common aims are defined and certain rules, necessary for successful cooperation within these networks, are determined.

SPECIALITIES OF VA TECH'S NETWORKS

Strategic networks have been defined as an arrangement between several legally and formally independent enterprises that promote long-term strategic cooperation. However, looking at VA Tech's composition, it becomes evident that the firms participating in the networks addressed are indeed group companies under a common holding company, and thus not completely independent from each other. Cooperation between EEV, AE&E, VA MCE, and EBG is thus not en-

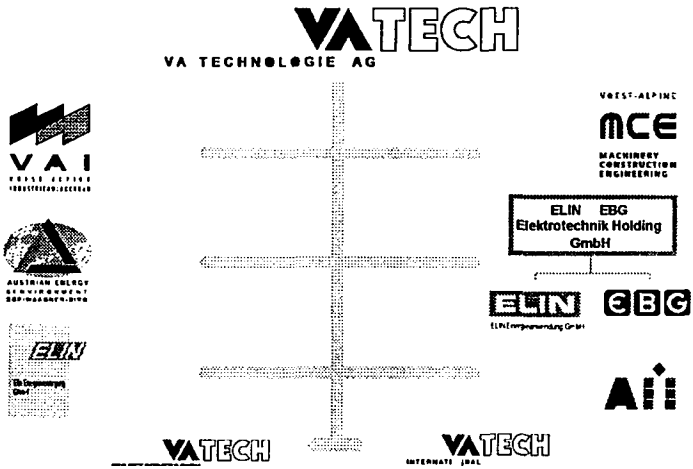

Figure 5. The VA Tech Group.

tirely voluntary, but has rather been imposed by VA Tech's leading executives. It was their strategic decision to form an intra-group network for the reasons named before. Thus, it was not the group companies choice to apply a network approach in order to gain a competitive advantage vis-à-vis their competitors outside the network. Partner selection, for obvious reasons, was not characterized by extensive in-depth assessment. Whether the new network partners had the resources and skills needed for the network to succeed was not a criteria applied. Also, to issues such as possibly differing organizational cultures and the creation of trust, among others, less interest than to be normally expected has been granted.

However, networks are often multifaceted in their structure—from tightly structured to more loosely organized ones with a greater degree of independence. The VA Tech networks are therefore well within this scope of different networking arrangements, although a higher degree of power than generally to be assumed with strategic networks has been applied for its establishment. Nevertheless, the fact that VA Tech networks have rather been constructed by the efforts of management than by market forces cannot be overlooked.

VA TECH'S MOTIVES FOR NETWORKING

In order to create an organization that can cope with the competitive demands of the 21st century, VA Tech identified network man-

agement as a central management tool. Through strategic network management the group companies should be integrated in order to improve its market position and ensure constant growth.

Choosing the network approach for doing business within the group area energy and environmental engineering had various motives:

- The network companies traditionally had and still have different markets where they hold relatively strong positions. EEV for example is well presented in Southeast Asia, whereas business volume in Latin America is only marginal. VA MCE, on the contrary, is better represented in Latin America (via subsidiaries) than in Southeast Asia. Thus, the logical idea is that network partners mutually serve as bridges to these foreign markets by pulling partnering firms when getting involved in international marketing activities. Drawing from each other's experience should be a tremendous support in entering new markets.
- Also, in some cases, joint bidding for power projects made sense. VA MCE for example might supply the mechanical components of a hydroelectric power plant and EEV will provide its electrical technology. Similar complementarities can be found between AE&E's, EBG's, and EEV's product palette. Therefore, the network enables a diversification of the product portfolio as well as the spreading of risk between group companies.
- Certainly the network was also seen as an immediate source for the acquisition of up-to-date information and thus business opportunities.

Concluding, the basic idea can be summarized: Doing business together instead of viewing each other as competitors (which has been the case in the past) should yield positive returns for all of the networks' companies and thus for the network as a whole. Via joined forces competitive actions against companies outside the network become more efficient and increase the group's market position. Establishing distribution units solely is costly and time consuming. The resources spared by joint market penetration can better be invested in the development of new technologies which then ensure a competitive advantage.

However, the network strategy might not always be the most suitable option for each group company. Different technologies or markets can demand a distinctive approach from time to time. This has been recognized and accepted. Nevertheless, the core goal is maximum business potential, order intake, and profit for the VA Tech as an integrated group. Thus, it is absolutely acceptable that in some

cases a network company experiences a competitive disadvantage due to its commitment to the network.

Most importantly the network should increase returns in the global, group-wide perspective. Problems will obviously arise when one partnering company perceives its participation as continuously disadvantageous for itself, though probably favorable for the whole group. In such a situation cries for fair sharing mechanisms are certainly appropriate and necessary.

THE OPERATIONAL PRACTICE

The agreement on an overall accepted network-strategy in line with each partner's corporate strategy is all important for any network's success. Nevertheless, VA Tech also recognized effective day-to-day network management as absolutely decisive for the long-time survival of the strategic networks. Guidelines for the networks of the group area energy and environmental engineering have therefore been laid down by VA Tech's corporate management.

Although these guidelines certainly gave a basic overview of the way the networks should work and which behavior is wanted or not, they still do not make effective and efficient networking an easy task. Of course, not all the people involved became perfect networkers immediately. Problems that had not been taken into account, or at least have not been considered to put severe threats on the smooth functioning of the networks, evolved. Experience indicated the following drawbacks (among others) as the most prominent barriers to networking in the case of VA Tech.

A general lack of information was identified as one major hindrance to efficient cooperation within the networks, whereas two main reasons can be made responsible for this disadvantageous fact.

Firstly, in some cases the willingness to exchange information freely and constantly was simply lacking. Executives tried to keep some information lead over other networking companies' managers, and thus transmitted valuable data too late or not at all. Such behavior naturally bounces back when spotted by network partners and is lethal for the creation of trust. However, before giving recommendations for ensuring an increased exchange of information, one clearly has to understand the motives for such kind of behavior.

Most important here is definitely the fact that managers still identify themselves with the company employed and therefore do not value the network to the extent necessary for its smooth operation. Furthermore, the multidomestic strategy promoted by VA Tech can be seen as partially contradictionary to the ideas of the network. Local

multidomestic units primarily exist to serve their local markets and may have designated export markets. The important role of the president of each of these local companies is to be a very efficient profit center manager, concentrating on serving local and export customers. Networking, however, demands one to put the network first, for the idea is: What serves the network will consequently serve the group company and its subsidiaries. The fundamental part of the philosophy is to accept and value that most people in the organization will naturally identify with the company at the local level.

Nevertheless, there still exists some means to overcome the natural local bias. Personnel management is required to come up with clear policies and programs for attracting, developing, rewarding, and retaining networkers. Strong incentives for managers dedicating themselves to the network must be established. Employee's achievements should be illuminated from a network view and promotions will thus be linked to accomplishments made for the network. Members of staff understanding that recognition does not merely come from within their department and their company, but also from the network, will view networking as a vital part of their personal career.

Transferring managers between participating firms and their multidomestic locations will allow bonding through social exchange—a significant factor for overall strength of inter-firm relationships. It will also improve the way these managers develop and mobilize the network. Key people with experience in working in several countries will bring substantial advantages wherever they may be.

Understanding the all important fact that networks are rather kept alive by the people interacting than by the executives deciding to establish a strategic network, VA Tech also recognized the importance of managers' personal interest and commitment toward the network. Experience showed that successful network cooperation more than once was made possible or respectively impossible by one single actor.

For example, the head of a foreign subsidiary or representative office might not be convinced by the network approach's usefulness. Thus, when contacted by a partner firm he will not make networkers feel inhibited to cross boundaries by letting them understand that he is not particularly keen on sharing information or answering questions and pointing out that he is really busy anyway. In practice, having made this experience, other network members will not bother to contact him again—a development surely not useful for increasing interaction and cooperation.

Having the right people with the necessary communication skills and a positive attitude toward networking at the right positions is thus all-important. Support mechanisms for (new) employees in order to teach them the necessary networking skills must be established.

VA Tech understood top management involvement as indispensable for keeping an eye on the network's ongoing development and appointed a board member as the network's godfather and mentor. The overall purpose of his role is to optimize the group area's technology base and its overall business activities on a global scale. This means developing, gaining commitment to, and championing a global strategy for the strategic networks. It is the business group managers that are responsible for taking a global view in a particular market. Keeping strategy development as well as execution close to corporate levels of power also signals to staff that networking is understood as central for the firm's success.

Apart from the fact that the willingness to exchange information is sometimes lacking, also a missing network infrastructure can be blamed for inefficient and ineffective communication and cooperation. To ensure faster and easier information exchange an electronic integration of data and information systems is more than desirable. Existing intranets must be extended. e-mail contact, as an example, is informal, speedy, and cheap. A technology group without an advanced IT-system is unthinkable in the 21st century. Especially in an international group, characterized by the usual absence of daily face-to-face contacts, frequent exchange of opinions and information is vital.

Communication is also positively related to trust—the cornerstone for strategic networks—and some facts about trustful behaviour within the VA Tech networks should be mentioned. When interviewing leading networkers one got the impression that relationships within the networks were not always dominated by trust. There have been some complaints about opportunistic behavior as well. A network partner, stating to pursue a strategy consistent with what has been decided upon within the network, in one case tried to gain an advantage over other group companies by contrary strategic moves and misinformation. Such behavior naturally makes the creation of an atmosphere of mutual trust a very difficult, and probably an impossible task. Decision makers feel they must protect themselves from other's opportunistic behavior and will not exchange information freely in return.

Constantly presenting the achievements made through the strategic networks can certainly help to show partners that they would

have been worse off in the past if they had behaved opportunistically. A track record of successful network projects will serve as a valuable proof that networking can yield manifold benefits. Partnering organizations also must perceive the contributions to the network made by each group company as balanced. No participating company must be allowed to sponge on the network. Fair sharing mechanisms will allocate increased value and profits in an acceptable way to all members.

Most importantly, in a healthy network partners want to commit and will retain from opportunism, because of shared values, benefits perceived, and constant communication. Network success is more unlikely to be associated with the exercise of coercive power that compels firms to cooperate. In the long run satisfaction with the alliance is the most important prequalification for continuos cooperation.

Presently VA Tech's networks can be described as satisfactory in certain aspects and from some points of view. However, these intra-company networks are still young and, as time is a major component for learning the art of successful networking, it is certainly not yet too late to adopt some changes and make network management more effective and efficient. At this point of time it is certainly accepted by the majority of the group's managers that strategic networks are far from easily manageable. Demonstrating the necessary willingness to face its complications should thus make (more) successful network cooperation possible in the future.

CONCLUSION

Numerous motives for entering or establishing a strategic network have been highlighted. Apart from the advantages strategic networks can clearly offer, one must not overlook possible drawbacks. After all, networking also is a very advanced and complex form of cooperation—far from easily manageable. It requires a carefully developed infrastructure of culture, measurements, style, and rewards to support it. When improperly applied, strategic networks can be less effective than old-fashioned hierarchical organizations. Like every new concept, the network organization must not be touted as a cure for almost any management ill. Strategic networks are far from being a panacea to all of the corporations' weaknesses. Applied properly networking can clearly yield manifold benefits. Keeping an eye on the *Checklist for a Successful Strategic Network,* the possibility of failure should be minimized. The criteria offered are certainly not entirely comprehensive and cannot guarantee the suc-

cessful establishment of a strategic network. Moreover, network management is more an art than a science. Allowing sufficient time for partner selection, network construction, bonding, and trust building is all important for long-term success.

Looking at strategic networks in practice, VA Tech served as a good example for demonstrating the network approach's strengths and weaknesses. VA Technology discovered networking as a favorable way of integrating their group companies within the group area energy and environmental engineering. This business area clusters together AE&E, EBG, EEV, and VA MCE—the group companies active in the particular type of business, having its own market and direct competitors.

VA Tech is truly a challenging example of an enterprise that set out to create something very new. The process of building up these strategic networks was clearly not always smooth. It has involved considerable difficulties in putting the concept in operation. VA Tech's managers gained considerable experience in network management, but also had to understand that strategic networks are far from easily manageable. However, the fact that we mainly concentrated on the operational problems arising during the strategic networks' establishment should not distract from the fact that the network approach yielded manifold benefits for VA Tech. Today the group continues a constant two-digit growth in terms of order intake and turnover.

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