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Marketing innovative service solutions with inter-organizational service networks: opportunities and threats

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Nr. 26

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Marketing innovative Service Solutions with Inter-organizational Service Net- works: Opportunities and Threats



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for Information Systems**



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1 Introduction

It is commonly held that network organizations are a result of the prevalent turbulence in the global market place and are likely to herald socio-economic changes of the same magnitude, as were brought by the Industrial Revolution of the late 18th Century.

Organisational forms have evolved since the Industrial Revolution. Beginning with the functional specialization organizations of the early steel and automobile companies that catered to limited markets through to multi-divisional organizations of the cement, steel, textile and automobile companies, that aimed at providing variety of products to more demanding markets through to matrix organisations of the 1970s that built in several cross authority/responsibility paradigm to utilize developments in scientific management principles through, presently, to network organizations that are being spurred by the environmental exigencies caused by rapid technological changes, knowledge becoming the new currency of the world and above all a truly global marketplace due to the tearing down of political and economic borders.

A new concept began to dominate the organisation theory literature in the early 1990's. With conceptual origins dating back to the 1960s social theory (Argyris 1962) and 1980's organisational theory (Farris 1981), the network theory (Nohria and Eccles 1992) focused on the organizational interactions. The term 'network organisation', now popular in both theory and application, has been used with reference to different industries by Burns and Stalker (1961); Mintzberg (1979); Eccles and Crane (1987) and Gulati et al (2000).

A network organisation is defined in this context as follows: the network organisation is an interdependent coalition of task- or skill-specialised economic entities, independent firms, or autonomous organisational units, that operates without hierarchical control but is embedded, by means of dense lateral connections, mutuality, and reciprocity, in a shared value system that defines "membership" roles and responsibilities (Achrol and Kotler 1999).

While network organisations have also been defined in terms of self governance, specialisation, and joint objectives, the current interpretations of network organisations focus on the vastly-increased use of information technology and shared databases (Winch et al. 1997; Symon 2000; Cheng et al. 2001).

A network organization is distinguished from other forms of organizations, such as those mentioned above, by the density, multiplexity, and reciprocity of ties and a shared value system

defining membership roles and responsibilities (Achrol 1997). The quality of relationships and the shared values that govern them differentiate a network organization. The relationships are characterized by non-hierarchical, long-term commitments; multiple roles and responsibilities; mutuality; and affiliational sentiments (Gerlach 1992). Mere presence of a network of ties does not distinguish the network organization (Baker 1992).

Drucker (1988) envisages the typical business 20 years hence as far more likely to resemble a hospital, or a university, or a symphony orchestra. "Like them, the typical business will be knowledge based, an organization composed largely of specialists who direct and discipline their own performance through organized feedback from colleagues, customers, and headquarters."

Achrol (1997) identifies four types of network organizations viz. internal market networks, vertical market networks, inter-market networks, and opportunity networks. Of specific interest to us is the opportunity network. Based on Emerson's (1972) concept of an "opportunity structure", an opportunity network is closer, in form, with a market than a hierarchy. Early forms of the opportunity network have been discussed by Miles and Snow (1993), who describe the form as a "dynamic network," and Achrol (1991), who refers to it as a "marketing exchange company." Achrol (1997) defines the opportunity network as a set of firms specializing in various products, technologies, or services that assemble, disassemble, and reassemble in temporary alignments around particular projects or problems.

At the heart of an opportunity network is a marketing organization specializing in collecting and disseminating market information, negotiating, coordinating projects for customers and suppliers, and regulating product standards and exchange behaviours for the network of participating companies. Its environmental scanning and adaptive mechanisms are oriented to and driven by consumers and markets. The quality of its market information network represents its primary source of coordinating power.

The strategic essence of such a network is a worldwide network of marketing offices and information centres connected together by ICT (Information and Communication Technologies). The marketing offices operate like semi-autonomous brokerage firms dealing among themselves like a computerized stock exchange. At one end, consumer needs and inquiries, market intelligence, and economic trends are monitored and fed into the system. The information is instantly processed by expert software and relayed to all relevant or potential users. At the other end of the system, the marketing company is hooked into a worldwide directory of suppliers of

products with all relevant information on product specification, custom design possibilities, prices, existing inventory and locations, production time, terms of trade, and so on. Existing and potential matches between customer needs and suppliers are sorted by system software and instantly relayed to marketing offices to negotiate into transactions. The negotiations could be conducted in a matter of hours by linking together online, customer, network marketing offices, staff specialists (e.g., financial or design staff), and suppliers of products or technology. The transaction can be completed and simultaneously spliced into the supplier's or the network company's distribution and delivery systems.

Futuristic as this may sound, such types of global opportunity networks are still evolving. According to Achrol (1997), two prototype organizations that appear to be progressing toward this form of network are a collection of direct marketing companies that use various media such as dedicated TV channels, the Internet, and 800 number phone lines to market a wide variety of consumer products and novelties, and the closest to this concept, the Japanese-type general trading company or *sogo shosha*.

Lorenzoni and Baden-Fuller (1995) examine strategic centres through three dimensions: (1) as a creator of value for their partners; (2) as leaders, rule setters, and capability builders, and (3) as simultaneously structuring and strategising.

2 Service Networks

Researchers have argued that inter-organizational networks are a hybrid form of organization form, separate from markets and hierarchies, which require unique theories and research approaches (Grandori 1997, Jones *et al.* 1998). Service networks relate to the provision of a service-oriented co-operation of more than two legally independent partners, which, nonetheless, are not independent in terms of economic co-operation. Networks have been thought to arise from the social interaction of collective activities of multiple parties (Powell *et al.* 1996).

Networks have generally been defined to include the multiplicity of ways in which at least two firms or subunits within the firms maybe organized as hybrids (Powell 1987) to cooperate for mutual benefit (Koza and Lewin 1999). The relationships between enterprises that provide the services go beyond pure market aspects (spot contracts). They continue for a particular time frame. They are not one-off, but are long-term and ongoing in nature.

The formation of inter-organization networks is contingent upon the external environment and specific features characterizing a particular industry, like level of institutionalisation, competition and strategy of players, industry life-cycle stage etc. (Sydow, Well and Windeler 1997). Examples of alliance networks include code sharing arrangements among airlines, ATM networks providing global coverage, referral networks in medicine, and professional services such as banking, consultancy etc. Far from being rare, service networks are omnipresent (Koza and Lewin 1999).

There is an exchange of resources between the participating network partners. They are ideal for production and marketing of innovative service solutions. Innovative service solutions are designed to satisfy a complex customer problem, eg., combining different products, possibly of different product categories, pre and after sales service as well as education on the use of products such as multimedia, home cinema installation.

The design, survival and economic success of inter-firm network is highly dependent upon the structure of the industry in which the network is organized (Sydow, Well and Windeler 1997). Managers have to take into account the structures of industry for formation of networks. The interplay between inter-firm networks and industry structure has been observed in German financial services industry (Sydow, Well and Windeler 1997).

Service networks combine two elements central to organizational design, closeness to the customers and efficient back office operations. By being close to the customer, the service network is on the pulse concerning (latent) needs and wants of the customers. The network parent wields a varying degree of influence over the performance of individual operational nodes. Therefore, the parent can create value through guidance, implementation of appropriate performance measures, specialist help etc. Conversely, it can destroy value by excessive bureaucratic planning; burdening nodes with excessive overheads or giving misguided advice (Chandler 1991).

By organizing transactions efficiently by well-organized back office service network is also able to rapidly disseminate knowledge to all network partners and to produce the service cost efficiently. Such service networks not only strengthen the competencies and capabilities of network partners to provide high quality and cost effective services but also contribute to the development of a sound shared infrastructure. The competitive benefits and advantages provided by international service networks are becoming increasingly important in this era of globalization and have been discussed by several authors (Incandela, McLaughlin and Smith-Shi 1999; Lovelock and Yip 1996; Valikangas and Lethinen 1994; Van Dierdonck 1998).

However, the management of such networks also introduces a number of practical and conceptual challenges (Lewis, Shulver, Johnston, Mattson, Milletw and Slack 2004). Manoeuvring dense inter-firm networks operating within asymmetrical structures can prove to be very difficult (Sydow, Well and Windeler 1997).

A service network is a collaboration amongst two or more organisations that decide to cooperate as a group in order to provide services regionally, nationally, or globally, that no member of the group could independently provide. In other words, a service network is a joint effort of already successful businesses (albeit at smaller scales), which cooperate and collaborate to seek new business opportunities beyond their usual turf. It involves cooperation among the enterprises in order to explore new markets, identify new customers, create customer specific service offerings, offer integrated basket of services, competitively pricing the offering and efficient execution of the promises made. The peculiar characteristic of service network is that members of the service network pursue a collective strategy that enhances their individual performance beyond those that they could individually manage (Astley, 1984).

A completely antithetical view (Eccles 1981, Podolny and Page 1998, Sydow and Windeler 1998, Thorelli 1986, Williamson 1991) is that business networks are not a new concept in the world of business. For as long as there have been businesses trying to make a profit, there have been cooperative efforts among firms to develop joint products, share their expertise, provide valuable support and services to each other and to the customers. What is new, however, are some communication and information technology tools that are now available to design and implement the service networks. It can now be more comprehensively designed using proven and established processes (offline to begin with and then going upto online fulfilment processes). Service networks are Internet business communities where companies collaborate through loosely coupled business services. Participants register business services (e.g., place an order, make a payment) that others can discover and incorporate into their own business processes with a few clicks of a mouse.

2.1 Characteristics of Service Networks

Although several service networks have been built for a variety of objectives, most business service networks have a number of characteristics in common. Networks form because the members require solutions to shared business challenges and opportunities. Once formed, the growth of a network will depend on how well it meets the business needs of its members, and upon their long-term commitment to the alliance. Networks are collaborative, bottom-up organizations. Unlike many other formal relationships among businesses, networks are flexible and non-hierarchical with members sharing in decision-making and the design and implementation of strategies. Networks can vary in size, objectives and structure. Membership can range from fewer than three members to few hundred. Objectives vary widely according to the needs of the members and their purpose of coming together. The organizational structure could be very formal or so informal as to be almost nonexistent or anywhere in between.

Conventional exchange between companies has been in the form of EDI / EAI connectivity – which introduces restrictions that it requires investment in costly networking and application software and is limited to existing buyer-seller partnerships. Further it also is restrictive such that only large players who can afford the costly solutions can get on the network. As against this the Internet and WWW provide an excellent network for one and all and can be leveraged by any buyer or seller located in any part of the world. Using the Internet companies build on each

other's services and create new services thereby creating network-centric business models. Since the platform is not owned by anyone it creates a level playing field for the large and small companies, and hence promotes true spirit of open market and in turn makes innovation the new currency of international business.

Four stages in the formation of a service network have been identified (Fine, Pancharatnam and Thomson 2000; Leutz 1999). The genesis is in autonomous organisation that provide services independent of each other, often times competing with each other, although they might indirectly affect the service provided by successive stages. In this stage organisations are providing basic services and meeting, probably, only part requirements of the customers. Efforts at this stage are about efficiency of service delivery and lowest cost. The second stage is about cooperation amongst the service companies where there are informal agreements for sharing of services. Although there is enhanced communication between service providers and a willingness to work together to achieve mutually agreed goals, however, these ties do not lead to any loss of independence of any service provider. This stage is the beginning of a mutual understanding for delivering services beyond the elementary and therefore requires mutual cooperation between the service providers in order to create enhanced services. The third stage is that of co-ordination which is a formal agreement amongst service providers for delivering services to customers. Minimisation of overlapping services, reduction in duplicated processes and sharing of resources are the characteristics of this stage. The stage requires agreed protocols for co-ordination and usually necessitates an external co-ordinator. One of the most complex forms of service networks, this stage is in its infancy in several industry sectors that have been faced with increasing competition, lowering of margins, need for lowering of costs and most importantly demanding customers. Some level of mutual trust has been established amongst the various participants of this co-ordination. The final stage envisaged is that of a totally integrated service network that is almost an autonomous organisation of smaller organisations. The boundaries between various participants reduces to a non-existent level. Very high level of trust binds the various participants. Both the participants as well as the customers are likely to benefit extensively from this kind of an integration. However such a stage is still a few years away and would require maturing of the service industry as well as the customers.

2.2 Benefits & Classification of Service Networks

The benefits of service networks could be several in numbers. To begin with service networks provide options for making service available across hitherto unreachable markets both nationally and globally, help achieve economies of scale, provide impetus to enhance their competitiveness in both domestic and international markets, stimulate new business opportunities to innovate and commercialize new products and services offerings, improve the responsiveness of service delivery, help reduce costs of operation, enhance the scope to form new capital bases and create new businesses, increase exports, and provides means to explore new sources of competitive advantage. Service networks also allow better negotiation position, for all the participants, in terms of suppliers, customers and/or regulatory bodies. It further presents opportunities for large-scale marketing efforts at smaller individual contributions. Complementary technological expertise, labour and management skills are a further benefit. (Buttery and Buttery 1994, Grandori and Soda 1995, Ring and Van den Ven 1994).

2.3 Conceptual and practical challenges

In spite of so many obvious benefits of service networks, it is yet to become the next big form of an organisation as has been predicted to be. There are some conceptual and practical challenges facing service networks, answers for which are still being explored. At a conceptual level one of the biggest challenge is that of the binding element. Since most service networks comprise of organisations – large or small, that are already in business and have come together in search of larger benefits, the cohesiveness amongst these participants is fragile. Trust amongst the participating companies is of foremost concern, (Smith and Holmes, 1997). Further, the absence of a comprehensive vision and long term goals – a must for the longevity of any organisation, are not always present. Another issue is that of leadership, since there are no clearly defined roles. Another critical issue is that of the cultural integration of the participants of a service networks. This issue assumes importance particularly when the networks are being formed across culturally different business practices across the globe. However, these are issues that haunt even the large non-networked organisations that do business globally, and hence will continue to be researched and discussed in various academic and industry fora.

The more mundane, practical challenges to the formation of service networks are – size of the participating organisation. Considering the benefits a network would offer its clients, the size of

the participating organisation has to be adequate to meet the requirements of the clients that utilise the networked services. At the same if the size of the participating company is very large it might tend to overshadow the fair distribution of benefits and might even scare off some of the prospective participants in the network (Burt 1992, Shoonhoven and Jelinek 1990) One of the most tactical issue might be the running of this network – right from how are the roles and responsibilities in the network assigned, (Ibarra 1992) what is the form of control mechanism and reporting. Another thorny issue is the sharing of revenues by the various members of the network. Even the alignment of the business processes for a seamless integration (Tushman and Romanelli 1985) is slated as one of the immediate challenges. Finally the point of origin (parenting) of the service network has also been identified as one of the challenges (Goold, Campbell and Alexander 1994). One of the biggest threats to a small business network is the lack of a focused, committed facilitator — a business network advisor — who can tend to the myriad of details of the alliance, thereby allowing the partners to devote most of their energy to their prime businesses. Networks can fail for a number of other reasons as well. For example, network members go into competition with each other, or the network may move away from its core business. Also, sometimes network members won't share business opportunities or lack the effort and commitment needed to make the group a success.

3 Cases of Innovative Service Solutions marketed by Service Networks

3.1 Case Study 1 – First Service Networks, USA

A US based provider of repair and maintenance service to multi-site organisations, First Service Networks (www.firstservicenetworks.com) has been in business for over 38 years. They claim to have invented the single-source technical maintenance management way back in 1966. It was set up in the 60s, with a vision of establishing a network of skilled, reliable, and independent commercial contractors across the US who could meet the maintenance and repair needs of multi-site retailers efficiently and skilfully, while giving customers a single point of contact for getting service, no matter where it was needed. Originally named *SureAir*, the company broadened their services beyond HVAC, plumbing and electrical to match the needs of the marketplace. To reflect the company's growth beyond HVAC servicing and to mark the integration of new technologies into their business, *SureAir* was renamed First Service Networks in the year 2000.

The company claims that they do not have any challenge to their leadership in the multi-billion dollar market for such services. The company has over 3000 contractors enlisted in its network and caters to over 30,000 sites across US and some parts of Canada.

The company works with a mission of providing a Web-based interactive network linking a client's headquarters, individual retail locations, various service contractors and the company's own call centre in order to generate faster responses, better service work, and timely, accurate administrative and financial reporting. To fulfil the promise of keeping technical breakdowns to their lowest, the company has constantly updated, state of the art technologies for more rapid response, more efficient service work and timely financial reporting so that the client's bottom line isn't hurt in any circumstance.

The company provides three levels of technical service expertise – preventive maintenance; on-call repair; and installation. The preventive maintenance includes the traditional preventive checks for HVAC equipment including the components such as filters, condensers, and compressors. Service technicians routinely check for specific issues that allow detection of problems, either potential or existing, and take action to correct those problems. These result in decreased system failures and “down time”. The company works with its customers in order to develop an optimal preventive maintenance program for individual sites.

The on-call repair comes into service when a problem occurs at any of the client's site locations, when a fast, effective response is required to minimize the damage. The clients can get in touch with the company by phone, fax, e-mail or by entering a service request directly on a client specific login on the company's website. The company then immediately dispatches the local contractor to the client's site.

Estimated and Actual times are monitored and a confirmation call is made after completion of work to assess satisfaction. The client is also able to track the work in real-time from the website or other communication channels.

The installation services are provided during the building of new site or refitting an existing location with new equipment. The company has a team of service contractors for reliable, qualified consultation and installation project management. These contractors are specially selected for their knowledge of available systems and the ability to evaluate customer requirements and help select and install equipment that will perform effectively and cost-efficiently.

The benefits offered by the company to its clients include: Single point of contact for all services across locations, no wastage of client's manpower on monitoring of various services across locations thereby helping them to focus more on their customers, immediate and direct interactive Web access to vital historical and equipment-specific data, across various locations, detailed reporting.

3.2 Case Study 2 – PCNet (Tenenbaum and Khare 2004)

CommerceNet is a new kind of entrepreneurial R&D organization combining the best elements of a research lab, start-up incubator and public interest initiative. One such initiative of CommerceNet is PCNet. A pilot Business Service Network (BSN) for the PC industry, PCNet illustrates the importance of service network in a complex, global business ecosystem involving designing, building, distributing, and selling personal computers.

In the PC industry today various players in the value chain are connected to each other via EDI or other such costly, proprietary technologies. Such networks are not only costly (upwards of \$100,000 per connection) they also require lengthy setup times (several months). Further such connections make excellent business sense for large suppliers and retailers that do millions of dollars of business with each other, such as IBM and Ingram-Micro. But for hundreds of

thousands of smaller vendors and resellers, or the millions of individual buyers, connecting one-to-one doesn't appear to be a viable proposition. As a consequence, only a small fraction of the industry benefits from the efficiencies made possible due to access to market information. One of the simplest repercussions of this inefficiency is on an accurate tracking of inventory through the channel. For example if a reseller runs out of IBM ThinkPads, it reorders them from its distributor. The distributor then forwards the order to IBM, which builds and ships the machines. Suppose, however, that another reseller had a surplus of ThinkPads and this information was available with either the distributor or the main supplier, then a mutually agreeable sale can be initiated amongst the two re-sellers such that both benefit (one avoids a potential loss of sale and the other avoids costly write-offs)

The proposed alternative for this is to replace the existing supply chains with PCNet, a new business network wherein the trading companies connect to this network (kind of log in) and publish the services they offer and do business with other companies also logged into this network. This is not only meant to be cost saving (one registers for this network for a few thousand dollars), it is also very easy to establish (a few hours at most). The network provides information services such as product information, pricing, stocks, availability, inventory / production / shipping details etc. to the trading partners. A manufacturer logged into this network could then poll all its channel members for the inventory in the system. More sophisticated systems built by individual companies could even be able to integrate the demand forecasting, manufacturing and supply chain processes into this system thereby creating more efficient value chain for the company.

3.3 Case study 3 – HealthConnect (Tenenbaum and Khare 2004)

Another initiative of CommerceNet that is related with the healthcare industry has its roots in the highly fragmented healthcare sector in the US. It is estimated that the US medical system constitutes over 280,000 service providers and about 1200 insurance companies. With each of these having their own frameworks for paperwork, the back offices of hospitals and insurance companies are overloaded with paperwork, which has its impact on the quality of service provided as well as the cost for the same.

To address these issues, CommerceNet has initiated a healthcare business service network that connects the insurance payers and service providers using the Internet. The system based on an

architecture developed by CommerceNet to promote more meaningful e-business solutions on the web, facilitates a clinic to get real time data on a patient's insurance eligibility and even submit and track an insurance claim. The system, already operational at the above level of functionality, is further slated to include services to enable processing of the supporting documents for the insurance claims; settlement of claims by the insurance companies; enabling banks to pay for the additional amounts, not covered by the insurance, directly from the patient's savings / credit / checking account. Other plans are also afoot to include third party billing services in the network.

3.4 Case study 4 – Virtual Service Network for Mid-tier Millionaires

Capgemini (www.capgemini.com) has built a unique case for Virtual Service Networks. A specific class of High Networth Individuals (HNIs), that Capgemini refers to as Mid-tier Millionaires (MTM) and defines loosely as first generation small to mid-size business owners and highly paid corporate executives with investible assets ranging between US \$5 Million to US \$30 Million. These MTM need services of financial advisors, property consultants, legal advisors, image and PR consultants etc. but are neither have the quantum of wealth to justify dedicated staff nor able to afford them. Nevertheless, these MTMs form a sizeable chunk of the HNIs (about 20% according to Capgemini estimates) and hence a need is felt for wealth management providers.

Being the first generation of wealth creators, primarily through accumulated earnings, employee stocks, promoters share of IPO earnings etc. the MTMs have a complex requirement for asset management, portfolio management, risk assessment and management, real estate and property management besides the routine tax consultants and legal advisors. Further, since the wealth keeps growing from multiple sources the need for more people managing the same activity is also felt. However, Capgemini's research reveals that there are really very few of these MTMs that have thought about this and have taken concrete steps to achieve these ends. Non-availability of suitable service networks has been identified as one of the bottlenecks.

In this respect Capgemini proposes a unique "Virtual Service Network" (VSN), which it feels will meet the requirements of the MTMs without costing a bomb to maintain. Building on the latest technologies related with web-portals, online collaboration, workflow based wealth management and data aggregation and data mining, the VSN allows investment advisors, bankers, tax consultants etc. to collaborate for meeting the requirements of the clients (MTMs).

According to Capgemini, three core technologies underlie such VSNs: Account aggregation; Workflow based wealth management platforms; and secure online collaboration. Account aggregation helps in having an integrated view of the assets irrespective of where they are located or what type of assets exist. The workflow based platforms provides processes for such requirements as customer acquisition – lead generation, prospecting, sales processes etc; financial planning – coordination amongst various entities to assess MTM’s needs and identify investment strategies accordingly; review and reporting - a 360° view of the MTM’s account by all the service providers. Finally, since the information is primarily financial in nature, the biggest need of the client is that of security and hence a need for a secure collaboration amongst the providers in-terms of file sharing, document management, net meetings etc.

This is a unique application of service network since it fills a key necessity and utilizes the technology and service providers to integrate seamlessly for the benefit of the customer. All this while the customer is interacting with only the primary advisor and thereby finds an affordable solution that takes care of the needs without necessitating interaction with independent service providers.

4 Management concepts

In essence the existing models or formats for inter-organisation cooperation can be classified as: Strategic Alliances, Joint Ventures and Business Networks. Although other models such as franchising or third party outsourcing are also available and very frequently being utilised by several organisations across the world, they however remain quite strongly under the overall control of the organisation. For the other three mentioned above the terms of engagement are slightly different. Although these terms are used somewhat interchangeably, for purposes of this article, we are referring to business networks.

Strategic Alliance

A strategic alliance is usually a goal-oriented cooperation among two or more businesses, based on formal agreements. Usually it does not involve the establishment of a separate new organization.

Joint Venture

The joint venture arrangement is a goal-oriented cooperation among two or more businesses, involving the creation of a separate organization owned and controlled jointly by the parties involved. Usually they have their own management, employees, production systems, and so on. Cooperation tends to be limited to defined areas.

Business Network

The business network is designed as a co-operation over the medium term among at least three (usually more) independent businesses in a strategic area of business activity. The objective is to improve the competitiveness and capabilities of the individual members of the business network while achieving collective goals. To accomplish this, the network may take on a variety of forms with regard to their function, structure and organization. Three of the more common functional forms – production networks, service networks, and networks where a larger firm takes the leadership role.

Production Networks

These are usually enterprises that cooperate in the production of goods by making the best use of their combined resources and skills. There tend to be many shared areas of activity including people, production capability, technology and information. Production network members are able to achieve the level and range of production required to enter new markets, both domestic and global.

The benefits for the member companies of a production network include the sharing of knowledge information and production capabilities. They also gain advantages in terms of economies of scale and utilization of the unique capabilities of each member, to specialize and undertake new product developments, and of course to capture new market opportunities.

Service Networks

Business networks with a service objective tend to be enterprises that combine their collective resources to improve their competitiveness in the supply of some service. Members share the costs associated with research and development, training, and marketing. Members exploit the economies of scale by sharing work loads, geographic areas, specific expertise. Generally, the economies of scale would be out of reach of most small companies if it were not for a service networks arrangement.

Lead Firm Networks

The lead firm network is as the name implies – a network initiated by a large business called the lead firm. The purpose is to ensure that its suppliers can meet the quality, quantity and timetable of delivery required by the lead firm. At the same time, suppliers benefit by gaining access to a guaranteed market, as well as improved management and production techniques.

Such business arrangements have a number of benefits for the lead firm including a reliable long-term source of supply, and the opportunity to focus and specialize because production activities have been subcontracted. In many cases, the lead firm also has access to the innovations from smaller companies.

Of the three above, the production network and the lead-firm network (also known sometimes as OE suppliers network) are very popular and are widely seen in engineering, construction and manufacturing companies. The production network is one of the most well-established form of

co-operation and hence has already ironed out some of the typical issues that were raised above. Since the outputs of such networks is tangible enough to apply a variety of quality and efficiency norms, it is usually easy to arrive at mutually agreeable terms and conditions for the network. On the other hand the OE suppliers network is purely driven by the lead firm and hence the issues of leadership, commitment, trust are less of a concern. Even if conflicts arise, they are sorted out since there is a definite mechanism existing for handling these situations.

So far, service networks are a fledgling phenomenon that is still being experimented with. Some of the reasons why it has not take off have been discussed in a previous section. The following section details some of the probable success factors of a service network.

5 Factors contributing to success of service networks

Some factors that contribute to the success of service networks include a mutually evolved structure based on the members' needs and objectives. Further a successful service network is member-driven in terms of participation and decision-making. Achieving successes early in its formation, entuses the service network participants and hence every effort must be made to achieve this. Openness, frankness and trust are the critical ingredients of the success amongst any cooperative commitment. A network formed with clearly defined goals and objectives with the appropriate accountability and responsibility adequately delineated is more likely to be successful. A clearly agreed contribution of relevant resources to the network would be essential. The service network needs to have an effective information system for sharing information so that there is transparency in all transactions. Members need to monitor the progress of network activities by means of regular reporting and revision of cooperation agreements as needed. Each member company should be represented by the appropriate level of management, with necessary authority to commit their enterprise when required. Members need to recognize the limitations of teamwork and work around them. Adequate administrative/managerial staff is assigned within the service networks to do routine tasks efficiently. Of utmost importance is that the participants have a genuine commitment to the service network and this commitment is based on self-motivation and a win-win approach, not a zero-sum game. It is imperative that all the participants of the network have something to offer to the network that is valued by other participants. The network also needs to present an image of quality and stability, which will of utmost importance for the customer.

6 Guideline for Forming a Service Network

In this section, we look at how firms can evaluate their own current strategic situation and make a decision of forming / joining a service network. The goal is to identify the gap between what the firm can accomplish internally and what can be achieved with a cooperative business network. This involves a thorough examination of the firm's own internal and external strengths and weaknesses, accompanied by a clear statement of the strategic objective in terms of what a service network will achieve, the time frame in which to accomplish the goal, the specific capabilities already in place, and resources that will be required.

6.1 Strategic Analysis

A strategic analysis allows a company to assess its current status in terms of both its internal circumstances and its outside competitiveness. Following, are questions that a company can ask in order to get a good picture of its current and projected strategic position.

6.1.1 The Industrial Sector

What are the conditions in the industrial sector the firm operates in? What are the determinants such as natural resources, technology, capital, human resources, knowledge that affects the industry in general and the firm in particular? What is most important demand factor in this sector for example volume of demand, mix, and customer profile? What is the related industry practice with respect to suppliers and service companies that serve this industrial sector?

6.1.2 Competitive Scenario

What is the competitive situation in the industry? What conditions influence the suppliers? The customers? The competitors? Who, if any, are the potential newcomers? Are there potential substitutes for the firms' products/services? What are the resources, expertise and relations that give the firm an advantage in the marketplace?

6.1.3 Networking Expectations

One of the best ways to determine if the service network concept is right for you and your company is to answer a number of basic questions about your own expectations for the this network. Many of these questions are usually answered in a feasibility study or detailed business

plan. However, they are important starter questions to get potential network members thinking about the commitment required, the issues and concerns to do with network formation, and the smooth running and successful operation of the business network.

Is the firm willing to commit time to managing the network? Would someone from the firm be able to attend regular network meetings? Is the firm capable of accepting decisions agreed to by other network members? Is the firm willing to resolve network issues and concerns according to the best interests of the group? Is the firm willing to be flexible and recognize that circumstances may change and that the agreement might also have to change?

As far as the business network is concerned the following questions need to be answered: Will the network act independently of the companies with regard to management, staff, money? Will the network generate revenue and operate on a profit basis? Will the network invite other companies to join the network if it is in the general interests of the group? Will the network put into place measures to protect your company secrets both during negotiations and the operation of the network? Answers to questions like these will quickly determine if the firm is ready for business networking.

6.1.4 Corporate Values

Corporate values are the beliefs, attitudes and actions a company practices about different aspects of its business, for example, how it treats employees or customers. Determining corporate values is part of the strategic analysis process of evaluating a firm's situation before it decides whether business networking is a good strategy and the kind of partners it needs.

Identifying and crystallising the firm's corporate values is the first step in this direction. What attitude does the company have towards business networking? What aspects of the company's corporate culture must be taken into account when seeking network partners? Is the company able or willing to change to accommodate the needs of the other potential partners?

6.1.5 SWOT Analysis

The final tool in the strategic analysis category is the very popular SWOT analysis. This stands for Strengths, Weaknesses, Opportunities and Threats, a simple management technique for providing a one-page snapshot of a company's strong points and the ways that these competitive advantages and core expertise can best be utilized. It also uncovers areas where the company

might have critical weaknesses and shows whether there is potential for improvement. All these are important elements to know in advance before committing to a business network.

6.1.6 The One-Page Business Plan

Every company has a business plan; it might be a large docket stored in the corporate office or it might be in the heads of the senior management team. However a clearly spelt out single page plan of action that allows the company to focus on its most important issues and goals, define directions in addition to quantifying the main products, services, markets, technologies and core competencies. More importantly the one-page plan helps the potential partners determine the critical success factors for business networking goals. In general, companies intending to create a service network should strive, at the outset, to come to a general agreement on goals and overall business directions. Simple, well-defined goals make it easier to determine whether the partnership is achieving its intended purpose. The business plan uses information from the strategic analysis to set the company's strategic direction. It has information on issues such as: What is the company's business idea? What is the company's main corporate goal? Which products/services should be given priority? What are the market priorities? What are the important purchasing criteria? What are the core areas of competence? What technology is most important to the firm? What are the critical success factors for achieve the company's goal? What projects will allow the firm to achieve its goal? To help you complete your one-page business plan, a worksheet is provided in Worksheet series.

6.2 Identifying the Right Partner for Service Networking

When the decision has been made to pursue networking as a business strategy, a company will set about seeking suitable network partners. A company may already have potential candidates or partners in mind. Or, it may have to start the search from scratch. We now look at formulating specifications, implementing the search process, and screening potential partners for your business network.

6.2.1 The Search for Partners

A formal partner search begins by developing the search criteria: What does the company need from its network partners in order to meet their objectives? Then comes identification of the

candidates: What companies are able to meet these needs? The selection of the partners follows based on the two above. Then the actual formation of the Business Network takes place. Many partner searches fail because the lead company has unrealistic expectations or a half-hearted commitment. For this reason, the point of departure should be the strategy document that states the company's expectations of networking and the strategy they are interested in pursuing. It is always worthwhile for a company to spend time identifying the competencies and attitudes they bring to networking and clarifying their expectations of future network partners before beginning the search process. Some key questions at this stage are: What kind of partner is the company looking for? An equal partner? An associate? An assistant? What attitude does the company have towards networking? What aspects of the company's corporate culture or values must be taken into account when seeking network partners? Is the company able and willing to change to accommodate the needs of potential partners? What are the areas of core competence that give the company its competitive advantage in the marketplace? Resources? Expertise? Relationships? Is the company looking for a partner that reinforces their areas of core competence, or one that complements them?

After the company has analysed what they bring to the network relationship, and what they expect from it, its ready to formulate the search criteria or specifications for network partners. The company's strategic analysis is a useful tool for defining the search criteria. It is important to identify partners whose development potential fits well with the company's own resources. Partners need to be motivated to take advantage of the opportunities provided by business networking. Specifications should be detailed enough to limit the search to a fairly narrow sector. A search that is too wide will be expensive and time-consuming. On the other hand, if the requirements are too specific, the search may be doomed to failure. It is important to be flexible and to have enough alternatives.

The process of identifying candidates is divided into two activities: finding companies which meet the search criteria and ranking them according to their desirability. Finding candidates that meet your search criteria can include a review of databases, directories, advertisements, and business network advisors. Once the right types of partnership firm have been found, they should be ranked according to how well they meet the needs of the company conducting the partner search. It is important to have information about the business strategy and organization of potential partners; details that can be gathered through meetings with business owners and

managers, and through contacts in the relevant industry. Other good sources of information about potential partners are the candidate's close associates, such as customers, suppliers and competitors, trade associations, the candidate's employees, and business advisors. When ranking the candidates, consider their corporate culture, the results of previous cooperative ventures, their stability, decisiveness, management and ownership structure as well as the quality of products and services and their competitiveness and core competencies.

Even though a set of specifications have been generated, it is important to stay open to other possibilities. Deciding how much time and money can be committed to the search process is a good practice to follow. If the first screening fails to produce a suitable partner, should the firm continue the search? Initially, cooperation should be based on what the partners do well, that is, on their established business areas. Focus the negotiations on a win-win situation.

The stage is now set for the selection of the partners. At this stage, it is essential to assess how appropriate the top-ranked candidates are, and how potentially effective their partnership could be. Two important factors are the elements of the candidates' resources and the quality of those resources. The candidates' resources may include: distribution network, technological expertise, financial resources etc. The quality or extent of those resources may consist of: how much capacity, what technology, turnaround times, strength of the distribution network etc.

6.2.2 Hidden Agendas

Potential partners may bring hidden agendas to the negotiation table and one should be aware of this in advance if possible. Therefore, it is important to understand what benefits the partners seek from the business network. For example, firms can gain exclusive marketing and distribution rights to a particular offering, only to curb the offering because they saw it as competition for their own. Sometimes larger firms use business networks as insurance policies to hedge their bets. As such, they are not really interested in having the network succeed or are not fully committed to its success. Do some homework in advance and avoid these unhappy circumstances.

6.2.3 Personal Chemistry

Good personal chemistry among the key decision makers and a sense of compatibility are important parts of the business networking success. No matter how good the potential deal is, it

will be the personal chemistry among the partners, not how the partnership looks on paper that will make or break the deal. While there is no hard and fast rule to evaluate this part of the equation, spend time trying to get to know your partners on their own turf — their character and compatibility with you and your firm.

6.2.4 Internal Commitment

Commitment from the operational staff in the various companies who will actually carry out the implementation of the business alliance is a must for the network to succeed. Companies must be able to get buy-in from its own staff and ensure that equal support is present in their partner firms. Sufficient effort and incentives must be put in place up-front to bring the middle management on board and to channel their energy into supporting the partnership as opposed to undermining it.

6.2.5 Champions

A champion is someone who believes in the business networking idea and strives to get it accepted and implemented by the rest of the organization. If the firm can find or recruit this type of champion, someone who can steer the project through the bureaucracy of the corporation and be credible in defending its merits, then the business network is on the road to success. Seek out these people and build your networks around them.

Finally personal factors such as trust, commitment and bonding are less tangible and more difficult to assess than the business criteria. Nonetheless, such factors are very important in you're the selection. The business network advisor should be aware that if the companies fail to meet each other's expectations in the personal arena, even though the business factors indicate a good fit, partnering may not be a good choice.

The conclusion of the partner search would lead the company in identifying as many suitable network partners, as it needs; and then proceeds for a feasibility study for a cooperative project. However, it is also possible that the first search may not turn up any appropriate partners. In this case, the search process may begin again with the development of new search criteria.

6.3 Network Formation

After the partners have been identified, the network moves into the formative phase. The purpose of this stage is to clarify the basic network idea, assess strategic directions for member companies, and establish the group's priorities. An interim agreement, that covers the activities of the business network before the final agreement is signed, is prepared.

6.3.1 Clarifying Relationships

Once the network partners have been identified and have made a commitment to participating in a business network, the first step is to establish agreement with regard to the business objective, the levels of responsibility, the expectations of the members and other fundamental considerations. The goal here is to clarify the business network relationships.

Some of the key questions that the company can ask itself as well as its partners are: Can the member companies identify the areas in which they expect to see positive effects on income and costs? Are they shared among all the partners? If the network's objective has been difficult for individual members to achieve, how will the network solve the problem? What are the risks involved? Will individual participants have problems raising the capital needed to get the network up and running? How quickly will the network develop into an important part of the member companies' overall business activity? Do the member companies understand the diversity of common network projects? Are the member companies committed to the concept of networking?

These questions prepare the members for challenges that may arise later in the process and improve their chances of handling them successfully. Some more points that need to be clarified are: Is there a sincere commitment to cooperation among the group members? How will the members deal with conflicts within the group? Does each members' motivation extend beyond economic factors? Do any of the member companies have major suppliers or customers who could stop the project? Are there any agreements in place which could limit the sharing of skills and, market insight needed to achieve network objectives? Is the success of the network dependent on any key companies? If so, how certain is their participation and contribution? Are any of the members obviously fence-sitting or looking for a free ride? Are there any major differences of opinion as to how the network project will be organized and run?

6.3.2 Prioritizing Areas of Cooperation

The next step in the process of forming the alliance is to select areas of cooperation and then assign priorities. The process to develop cooperation priorities could be: First each company makes its own list of areas for cooperation, and ranks them according to its own needs. The group then compares the lists. If there is conflict among the members as to which area or areas should take priority, they may need to ask more questions to help them arrive at a consensus. Through discussion, the group reaches agreement on cooperation priorities and a shared understanding of the time lines. In addition, they should develop a mutual understanding of the expectations, the consequences of the companies' investments in the cooperative project and the allocation of resources. The group then commissions a feasibility study on one or more of the highest ranked projects. This feasibility study may be undertaken by the business network advisor or one or more of the network members. An effective feasibility study will take into consideration the management of the work schedule for the proposed project, working relations among the member companies, communications, consensus building, problem solving and so on. The feasibility study should be seen as the lead-in to the network business plan.

6.3.3 Negotiating within a Business Network

With a business partnership, negotiation is largely a process of defining mutual interest, establishing trust and developing a problem-solving attitude while at the same time, establishing a business plan for the proposed strategic alliance. Therefore, the negotiations should be used to get a better perspective of the other side's personality, capabilities and weaknesses, to clarify mutual goals and to establish the business and operational framework for the venture. The involvement of senior and operational management in the negotiations is the key to building a level of trust and collaborative attitude among the parties, things that can not be written into a legal agreement or letter of intent. Particularly when dealing in a foreign business culture, it is useful to involve specialized consultants to assist in the negotiations. Consultants knowledgeable in the culture, language and business practices of the foreign environment and who have credibility and contacts in the area of your proposed venture can create a better understanding of the potential deal and facilitate it.

6.3.4 Conflict Resolution

Business networks often involve partners with different cultures, capabilities and ultimate objectives. A certain amount of conflict, therefore, is inevitable. A moderate degree of conflict in an alliance can be quite healthy and a stimulus to creativity and improved performance. The key is to have a process in place that will keep conflicts from getting out of hand and causing serious disruption to the venture. Hence, companies should strive to reach agreement as to how conflicts among the parties are to be handled once the network is operational. Where a high degree of conflict is anticipated, it may be best to start with a highly focused alliance and a simple structure and build the relationship from there, working to find solutions to potential conflicts before attempting a more complex arrangement.

Having a mutually agreed upon and consistent set of management principles for the venture also helps. Many of the conflicts that arise within business networks are the results of misunderstandings or unclear or misread signals among the partners. Clearly defined and widely understood management principles and well-defined responsibilities can avoid some of the problems.

A formal method for resolving disputes will be beneficial and should be outlined as part of the agreement. This mechanism should be consistent with the nature of the network and the resources of the partners. It can range from having a designated mediator independent of the partners, to the establishment of an arbitration board consisting of people in each partner company who have dispute resolution experience and who are not involved in the conflict.

6.3.5 Interim Agreement

An interim agreement spells out the realistic goals, actions and measurable results that must be achieved before a final agreement is signed. Certain networks will want to see a feasibility study before they create the interim agreement. Others will prefer to conduct the feasibility study after the interim agreement has been signed.

When the members sign this agreement, they make an active commitment to the business network process and to the decision making process. Secondly, it acts as a work plan for the network project. The agreement includes the names of the members, the network goal and business idea members' responsibilities, division of work and costs, proposed model for organizing the network project and a progress plan for this level of network development.

6.3.6 Building Trust

Trust is one of the key success factors in business networking. There are no magic formulas for creating trust, it has to be built, and it can take time, but it will be worth the effort. The company itself has to begin by setting an example of trust and demonstrate a high level of trust and integrity in all its dealings with network partners. This will set the tone for all future network relationships. Listening to negative as well as positive views and showing that it understand the partners' fears and concerns would help go a long way. Loss of control, information sharing, working cooperatively with competitors and the uncertainty of a new venture are the apprehensions playing on the participating members' minds.

6.3.7 Share Information

Providing information about its own business experience, encourages an insecure partner to feel more comfortable about the process. Details about how other members have dealt with their concerns can be very helpful.

6.3.8 Participation

To make progress and build trust, the network partners should be high level decision makers in their companies, such as general managers, CEOs or owners. But when details of setting up the network, process deployment, marketing ideas, etc are being worked on, it is equally important to include the people in charge of those areas.

6.3.9 Cooperation

It is important to consider how the business network will handle ongoing relationships after an agreement has been reached. The participants should discuss these points in advance. It is usually helpful for the people who will be working together to get to know each other away from the negotiating table. The group should clarify how they want to work together. For example, must they reach consensus on every decision? Participants must understand each other's corporate culture. How is criticism offered? How are people motivated? The network members may be familiar with their own company hierarchy, but a network is a group of equals. The group should also decide on how conflict will be handled.

6.4 Launching the Business Network

Once an interim agreement has been signed by the partners, the real work begins. Success depends on the day-to-day operating practices of the business network. No matter how good the agreement, and how clearly defined the goals and responsibilities, success will be achieved only through careful and attentive management of the venture.

It has been observed that partners forming an alliance put a great deal of effort into the details of negotiating the agreement but tend to pay insufficient attention to managing the venture. The management of the venture is really the management of a relationship and hence requires attention and trust. Unless partners have substantial experience in managing business networks, care should be taken to avoid trying to force results too quickly.

6.4.1 Managing Network Change

A critical aspect of alliance management and implementation involves the management of change. Successful networks undergo dramatic changes in their first few years as a result of changing economic conditions, new competitors, new technologies, revisions in partner goals, changes in capabilities and circumstances and the loss or reassignment of key managers. Managing a business network requires paying close attention to internal and external changes that can affect the venture.

Network management involves a continuous process of negotiating and reaching agreement on the nature and value of current arrangements. Any ideas about rigid planning and control should be tempered by the reality of the alliance's competitive environment. Partners unwilling to change or be flexible are unlikely to enjoy much success from their business network.

6.4.2 Network Growth and Ownership

It is quite possible that a network operation in which the member companies have shared their resources to achieve a good market position and strong potential for growth and is managed by experienced and qualified personnel from the member companies performs exceedingly well. As a result, the operation is experiencing healthy growth. The members companies are far removed from the day-to-day operations and any communication happens only formally through board meetings and budget and strategy sessions. Further, financial transactions with member companies are based on market prices, so they're not very different from any other transaction.

This kind of situation might result into the network beginning to separate from the member companies; not depending on them for financing and expertise; and starts making decisions that are in its own best interest. The members may not even realize that this is happening. If the network members have not planned for this degree of growth, problems may arise. One solution may be to consider network growth and independence in the long-range planning that is done during network start-up.

6.4.3 The Learning Process

Learning is the key to extract value from a business network. Partnerships can and should be an opportunity to learn and adopt the capabilities that any company needs to be successful in the longer term. This involves the creation of special procedures and attitudes to ensure that what needs to be learned is absorbed and used. In most cases, managers must modify their core operations and traditional organizations so that they will be open to learning from their network partners.

6.4.4 Network Deliverables

Without losing their focus on the long-term strategic objectives of the business network, managers should ensure that there is a continuous stream of short-term deliverables or medium-term achievements. These do not have to be significant achievements, even small things will do. They will help to demonstrate activity and progress, build confidence in the venture, and keep enthusiasm high for the partnership at both operational and senior management levels of the companies involved.

Finally, it is quite likely that as the network develops, the people involved may grow farther apart instead of closer together. Without the necessary trust and motivation, the network is most likely to fail. In this situation, it may be best for the group to split up. Network termination may hence be necessary.

6.4.5 Network Termination

Generally a business network is terminated either because the network has failed to meet its goals with regard to market position or the creation of profits, or because some or all of the members

can no longer see the benefits of participating any further. A business network may also be terminated for less tangible reasons, such as a lack of trust among the members.

Regardless of the reasons for ending the network, a successful termination, if it does come, should meet basic criteria. It should cost the network participants as little as possible to terminate. The termination should also be fair and should not preclude further cooperative ventures. It should not jeopardize the member companies' relations with customers, suppliers and investors. Finally, the return of personnel, functions and responsibilities to the member companies should be completed as smoothly and equitably as possible. One of the possible fall-outs of a terminated network could be conversion of commercial business network into a useful network for non-commercial activities such as developing a social business networking group to take on social causes.

7 Conclusion

Network organizations are one key to marketing innovative services. Service Networks in particular are one form of organization that might become more and more common in today's interconnected world. They are ideal for production and marketing of service solutions that are designed to satisfy a complex customer problem e.g., combining products, possibly of different product categories, pre- and after-sales service as well as 'education' on the use of the products such as "multi-media home-cinema installation". Service networks combine two elements central to organizational design: 'closeness to the customer' and 'efficient back-office operations'. By being close to the customer, the service network is 'on the pulse' concerning (latent) needs and wants of the customers. By organizing transactions efficiently by a well-organized back-office, the service network is also able to rapidly disseminate knowledge to all network partners and to produce the service cost-efficient. In essence, this paper showed how innovative service solutions are best marketed by service networks. Central to this study was to show at first which management concepts are already used to market innovative service solutions and to show, which concepts are excellent. In the process of an "international benchmarking", best practice networks worldwide have been identified. Based on the identification of the key success factors, a management guideline has been developed, indicating how to learn from best practice networks.

Table 1: General independent variables for defining network organisation. (source: Tuomela 2004)

| Variable | References | Definitions |
|--------------------------|---|---|
| Client centrality | Miles <i>et al.</i> 1986, 1992, 1995 and 1997; Snow <i>et al.</i> 1992; Jarillo 1993; Bueno 1997. | Network organisation (NO) is formed around a central actor and is based on market mechanisms and quantity benefits. Suppliers are managed through contracts and all operate for the benefit of the central actor. |
| Self governance | Eccles and Crane 1988; Baker 1992; Kanter and Eccles 1992; Richardson 1995; Birkinshaw 1998. | NO is a cluster of firms or specialized units coordinated by market mechanisms and autonomy rather than a strict chain of command. Instead of hierarchical client supplier management, the network is capable of self-organising and adjustable to client requirements with its autonomous teams and task forces. |
| Specialisation | Achrol 1991, 1997; Nadler <i>et al.</i> 1992; Baker 1992; Kanter and Eccles 1992; Achrol and Kotler 1999. | NO is an organisational alliance involved with different tasks and skills and based on interactivity, mutual financial benefits sharing responsibility, and jointly-set goals and values. |
| Joint objectives | Miles <i>et al.</i> 1995, 1997; Achrol 1997; Achrol and Kotler 1999. | NO is formed of internal and external teams that share and commit to joint objectives and shared goals on all network levels. |
| | | |
| Flexibility | Feneuille 1990; Baker 1992; Cravens <i>et al.</i> 1994. | NO is a “living organism” which provides better flexibility, modes of operation, and policies than traditional organisations and their vertical and horizontal networks. |
| Joint Marketing | Cravens <i>et al.</i> 1994; Cravens and Piercy 1994; Achrol and Kotler 1999. | NO develops the skills and resources needed to identify and move innovations quickly to commercial success. Also provides flexibility to cope with the rapidly-changing and intensely competitive marketplace. |
| Virtuality | Zeffane 1994; 1995; Baker 1994, 2000; Chinowsky and Goodman 1996; | NO is a graphically-distributed, functionally and/or culturally diverse virtual team as a group of people who interact through interdependent tasks guided by a common purpose that works across organizational |

| | | |
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| | <p>Lipnack and Stamps 1997; Winch <i>et al.</i> 1997; Ahuja and Carley 1999; Levy and Foster 1998; DeSanctis and Monge 1999; Kraut <i>et al.</i> 1999; Wiesenfeld <i>et al.</i> 1999; Black and Edwards 2000; Symon 2000; Coulson-Thomas 2003.</p> | <p>boundaries with links strengthened by webs of communication technologies.</p> |
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