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Managing Enterprise Networks: Support Structures for SMEs

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Abstract:

In an increasingly competitive global economy, small to medium sized enterprises (SME) realise that they must work together in order to survive. They must learn to share their experiences and knowledge and pool their resources to compete in turbulent environments. Enterprise networks can provide these companies with the linkages needed for success. Such networks are often used as a means to develop innovative solutions and to access new customers and markets. However, the task of forming a network is not trivial. SMEs find it particularly difficult to engage in collaborative endeavours. Specific support structures and systems are needed to facilitate relationship building and collaboration. This paper presents support structures that were developed for SMEs taking into consideration their unique requirements. This includes a training programme supported by case studies and a web enabled information system incorporating migration plans, best practice methods and an integrated toolkit.

Keywords: Network, Collaboration, Small to Medium Sized enterprises (SME), Support Structure, Best Practice.

1. Introduction

The business environment is becoming increasingly dynamic and is changing rapidly. Competition is becoming progressively more intense. Product life cycles are continuously reducing, customers are becoming more discerning and demanding, prices and margins are falling and organisations must do more and more with less and less. It is therefore even more difficult than ever to gain and maintain competitive advantage. In light of this, organisations in general and Small to Medium Sized Enterprises (SMEs) in particular recognise that in order to compete in such turbulent markets they must be equipped with the appropriate knowledge and skills to design, develop and deploy innovative products and

services that meet the needs of the end user (Nadler and Tushman, 1999; Davenport et al, 1998; Pan and Scarbrough, 1998). Owners and managers of small enterprises also acknowledge that it is increasingly difficult to do this by themselves.

SMEs that do not possess a complete set of knowledge, resources and skills to offer competitive solutions can become part of a network. Enterprise networks incorporate an alliance of independent organisations with complementary competencies and skills. They are often established to share competencies and pool resources to innovate outside of their individual capabilities (Warkentin et al, 2001; Ratcheva and Vyakarnam, 2001; Miles et al, 2000). They enable participating organisations to focus on individual core competencies where they can add value (Voss, 2003). Collaborating with other organisations with complementary competencies is lauded to facilitate access to information and increases the potential for action. Research suggests that such collaboration can also help reduce the cost of development as well as the probability of failure.

Nevertheless, many SMEs find it difficult to collaborate or network with other organisations. They fail to understand how they can actively participate in such initiatives. They also lack the essential resources such as time and skills needed to participate (Bougrain and Haudeville, 2002). In addition, much of the discussions on networks to date have focused on larger organisations. There has been little debate about or analysis of SME involvement in networks. The literature is often prescriptive and there is little evidence of meaningful support structures to enable smaller companies. The objective of this paper is to provide a better understanding of enterprise networks and identify how smaller organisations can participate in such initiatives. A comparative analysis of these new organisational structures is provided and the unique characteristics of an enterprise network are identified and discussed. The benefits of participating in such an endeavour are also highlighted. Key challenges for owners and managers of SME's are presented based on a qualitative study of SME owner/managers in seven European regions. The remainder of the paper focuses on presenting support structures to overcome these barriers. This includes a training programme and a web enabled information system incorporating migration plans, methods and tools.

2. The Networked Enterprise

Innovation is a collective and co-operative process and takes place in an inter-group setting. Thus, as Brown and Duguid (1998) note, "*collective practice leads to forms of collective knowledge and shared sense-making*". Knowledge networks allow their participants to create, share, and use strategic knowledge to improve operational efficiency and effectiveness (Warkentin et al, 2001). Consequently new organisational structures are emerging that facilitate

collaboration, knowledge sharing and thus innovation. The most notable of these is the Networked Enterprise. The Networked Enterprise can be defined as alliances of independent operating units bound together by common interests, shared visions and market mechanisms (Winch et al, 1997; Zeffane, 1994; Mowshowitz 1994). According to Miles and Snow (1986 and 1992), "*they are integrating entities that rely on other companies to perform basic support functions on a contractual and relationship basis*". They are "*co-ordinated horizontally*" (Nikolenko and Kleiner, 1996) and are designed to be "*flexible and adaptable to rapidly changing environments*" (Buono, 1997).

Network organisations are organised to increase access to information as well as to enhance the use of information (Hung, 2002; Kumon, 1992), both of which are essential to the creation and transfer of knowledge. They promote knowledge sharing, learning and change faster and more effective decision making (Mendelson, and Pillai, 1999; Richardson, 1995). They are characterised by flexibility, specialisation and emphasis on relationship management instead of market transactions. Collaborative networks clearly help firms to minimise the costs associated with finding, organising, and leveraging knowledge. They can also help employees to do their jobs more responsively and effectively. These new forms of organisation are (a) organised to optimise core competencies (b) have flatter structures and (c) promote interaction among organisational units and people. Table 1 compares and contrasts the traditional organisational structure to the new networked organisation.

Dimension	Old	New
Environment	Stable, physically collocated functions	Dynamic, competency-based networks
Added Value	Transform materials	Synthesise information
Size	Large	Small
Capability	Supervision	Collaboration, co-ordination
Development	Sequential	Concurrent
Organisation	Functional and centralised	Autonomous multi skilled teams
Management focus	Hierarchy	Relationship management
Communication	Formal information system	Continuous, flexible and multi-directional
Decision making	Vertical	Vertical and lateral
Contact	Face to face	Digital networks

Table 1 Comparative analysis between old and new organisational structures (Cormican and O'Sullivan, 2004)

3. Characteristics of an Enterprise Network

Networks also have special features or characteristics that can help to define and distinguish them. More specifically they are focused, they have complementary core competencies, all members in the network are equal and share risks and benefits and finally enterprise networks are temporary. Each of these features is discussed in more detail.

3.1 Networks are focused

For networks to be effective, participants' efforts must clearly link back to the strategic goals and value proposition of the organisation (Mowshowitz, 1994; Lipnack and Stamps, 1994). This requires strong leadership and communication strategies so that members clearly understand the core values and imperatives of the organisations they represent. They must also understand their role in fulfilling organisational objectives. When this understanding exists, members gain focus by first setting clear, compelling, and understandable objectives, and then by prioritising and aligning their collaborative efforts toward those goals.

3.2 Networks have complementary core competencies

Collaborative network is about building relationships (Kanter, 1997) in order to share resources (Hung, 2002) and optimise core competencies (Richardson, 1995). The participants in a collaborative network should therefore complement each other in order to design, develop and deploy products and services. One of the greatest advantage of the collaborative network is its ability to take on larger projects in a more efficient and flexible manner than would be possible for an individual organisation.

3.3 All members in the network are equal

Increased dependence within collaborative networks leads to equality in participant relations. Each partner in this collaborative effort plays a role, contributes to the improvement of the end product, and forms a link, regardless of location, in the functional process of the collaborative network. In this way, a culture based on the desire to share skills and information replaces the traditional control-based culture. Collaboration is a voluntary process; it cannot be hierarchically imposed or closely controlled (Miles et al, 2000). The desire and ability to take risks is an absolute prerequisite to membership in such an organisation. Each participant can offer leadership in its area of specialisation during the process of product or service development. In most cases, this is the organisation to which a project has been awarded, or which was the source or initiator of the idea. Trust in the collaborative network is based primarily on trust between people.

3.4 Networks are temporary

The components of a collaborative network are constantly in flux (Byrne, 1993). On one day, the network may be comprised of certain organisations, while the next day it could have different participants. The lifetime or lifecycle of an enterprise network often depends on the success of the products or services developed or provided by the members and can be described by at least four significant life-cycle phases. These are:

- Preparation of a network (identifying, sourcing and selecting partners)
- Establishment of a network (idea generation, setting goals and objectives, resolving legal issues, developing contracts, etc.)
- Operation of a network (day-to-day management of the network)
- Decomposition of a network (dissolvent or break up of the network)

3.5 Members share risks and benefits

Like a chain, a network is only as strong as its weakest node. For this reason, a balanced distribution of risks as well as profits within the enterprise network is a necessary for successful co-operation. In order for the network to survive, some added value must be achieved and perceived. In general, partners who cannot perceive any added value by co-operating with others will concentrate on their individual activities and will not put sufficient effort into the network. Mutual benefits in terms of shared added value become a stabilising factor for a co-operative behaviour in a network.

4. Key Benefits

There has been much written about the concept of collaboration and the implementation of networks in recent years. From a synthesis of the literature several potential benefits that can accrue to an organisation if they establish or operate in a collaborative network can be extracted. These include:

- **Increased Creativity:** Information and knowledge are the key drivers of an organisation's growth and profitability. Networks promote divergent thinking and the cross fertilisation of ideas. Innovative outcomes are enhanced when enthusiastic, self-motivated, diverse sets of people come together to achieve a common goal.
- **Faster Knowledge Transfer:** Networks are an effective mechanism for generating, sharing, and applying organisational knowledge. They can help SMEs leverage knowledge assets more effectively and enable participants to locate and communicate with experts more quickly.
- **Enhanced Agility and Productivity:** Workers with easier access to relevant skills and resources perform more productively. They spend less time

looking for information and more time on leveraging and using it. They also make more effective decisions faster.

- **Optimised Resources:** Greater value chain agility enables faster market response, improved innovation processes leading to faster time to market and lower process costs and reduced risk for new product introductions.
- **Higher Profits:** Key performance indicators such as shorter lead times, lower costs, increased flexibility, better ideas and more satisfied customers have a significant impact on the bottom line and ultimately lead to higher profit margins.

However in order for these benefits to transpire there must be a clear need for collaboration. In other words, the network must achieve something that individual organisations can not achieve on their own. Therefore, a shared vision with obtainable goals is necessary. These must also reflect the needs of the participating organisations. Clear performance measures will help to keep the vision and strategy focussed. The group should also develop clear roles for all members as well as policy guidelines. Effective networks also need a strong leader who is able to clearly define the vision for the network and guide the members. This may be a strong organisation in the network or an independent broker. The success of the network is heavily dependant on mutual respect and trust between its members. Member companies must also take ownership of the network and be willing to contribute financially to its development. Members must have a stake both in the process and outcome. Finally, it is important to remember that networks take time to develop. Trust and independence is built over time and results in increasing flows of information throughout the network. There must be extra willingness and flexibility during the early stages of establishing a structure. However, if a network is able to demonstrate at an early stage that it can positively contribute to the member firms, it is likely to increase individual participant's commitment to its continual evolution.

5. MENS Project

It is becoming increasingly apparent that SMEs must take an active role in enterprise networks in order to exploit core competencies and participate in economies of scope and scale. The Managing Enterprise Networks (MENS) project was established to promote collaboration and innovation and thus competitiveness and growth in European SMEs. The project team comprises members of seven regions across Europe namely Spain, France, Italy, Ireland, Greece the Czech Republic and the Netherlands. The purpose of this project is to identify and analyse the barriers to effective SME collaboration and to address the restrictive issues of SME development and growth. To do this tailored training programmes and support structures are developed with the specific

requirements of SME's in mind. The ultimate goal is to equip SME managers with the skills, structures and systems to collaborate effectively in order to design, develop and deploy innovative products and services and consequently increase competitiveness, sustained growth and profits.

In order to determine the main barriers to effective collaboration an exploratory study across seven regions in Europe was conducted. A total of 182 surveys were executed between April 2004 and September 2004 using structured interviews and questionnaires. The aim of this study was to establish whether SMEs collaborated with other organisations and if so to determine the motive for collaboration and identify who they collaborate with i.e. other organisations, knowledge centres, value chain partners etc. The study also sought to determine the level of integration with key collaborators. It also aimed to establish whether they found it easy to share information, if they had sufficient and appropriate structures and systems in place to facilitate knowledge sharing and also to identify and prioritise the barriers that prevent them from collaboration. From this initial investigation we learned that:

- SMEs find it important to collaborate with others for competitive success
- SMEs collaborate strongly with value chain partners such as customers and suppliers
- Most collaboration is done with companies from the same sector
- Competition and trust are barriers preventing SMEs to collaborate
- SME owner managers find that they do not have sufficient time to collaborate as often or as well as they would like
- Knowledge is needed on practical strategic management activities, partner searching and effective communication skills
- There is strong demand for pragmatic, case based learning

With this in mind the project team developed a training programme using best practice pedagogy methods and tools.

6. Training Plan and Materials

A list of the modules in the training programme is presented in Table 2. Each of these modules is supported by case studies and regional specific resources with links for local support. Case studies provide context specific examples of real industrial endeavours. Most cases are based on actual situations and problems that have been encountered by European SMEs. They identify the lessons and failures of others and document specific goals, strategies, migration plans and outcomes. They can provide valuable teaching and learning resources for others facing similar problems or opportunities. They can also help other organisations to understand that knowledge is not a series of propositions to be absorbed, but a series of problems to be partly solved.

Module	Description
Collaboration	Introduction to the networked enterprise Benefits of knowledge sharing Collaboration strategies Obstacles to effective collaboration Critical success factor for collaboration
Partner Selection	Key stages selection process Types of partners and roles Criteria for selection Tools for partner search
Planning and Measurement	Introduction and benefits of project planning Elements of an effective plan Work breakdown structure Activity scheduling and time planning Risk assessment Establish performance indicators
Legal and Financial issues	Budget management Legal issues in the networked enterprise Intellectual property rights Funding for collaboration Tendering and bid specification Effective proposal writing
Communication	Effective communication strategies Active listening skills Effective presentations Leadership and teamwork Conflict management Overcoming cultural differences Negotiation skills
Information Technology	Importance of information technology Tools for collaboration Groupware and shared workspaces Criteria and specification for tool selection

Table 2: Modules on Training Programme

7. Web Enabled Information System

Information Communication technology has also created the opportunity for many organisations to establish collaborative networks in order to achieve mutually beneficial objectives (Warkentin et al, 2001; Mandviwalla and Khan,

1999; Nadler and Tushman, 1999; Leidner, 1999). This technology makes it easier, faster and cheaper to link people and organisations together. It is also a powerful enabler to knowledge management objectives. Such tools can facilitate the process of generating, structuring and sharing knowledge across temporal, geographical departmental and organisational boundaries. They allow the joint construction and distribution of experiences and insights and enable the creation of social networks. Thus, they not only support communication but also collaboration.

Figure 1 illustrates a screen shot of a web enabled information management tool that was specifically designed to help SME collaboration. This system comprises surveys, on line discussion forums, additional case studies as well as specific tools and techniques. A planning tool called MyPlanner is highlighted in the screenshot. This tool was designed to help SME managers to define their goals and actions. It also allows users to indicate the strength of the relationship between each action and goal and indicate the status of the organisations goals and actions. It is a useful asset to help manage collaborative efforts and growth based on best management practice. Other tools that are available include Pareto analysis, balanced scorecard techniques, mind mapping, house of quality matrices, cause and effect templates as well as Gantt chart and project planning templates.



Figure 1: Screen Shot of Information System (www.innovationchannel.net)

The training programme and information system are currently being implemented in industry. This analysis aims to assess their effectiveness (i.e. how useful, applicable and appropriate the material is) as well as its practicality (i.e. how pragmatic, functional and deployable the tools are). Results from this investigation will be used to fine tune the training material as well as the features and functions of the system.

8. Conclusion

We are experiencing a major distortion in the market place. Competition is becoming increasingly intense. It is more and more difficult for European companies in general and small to medium enterprises (SMEs) in particular to gain and maintain competitive advantage. Consequently, we are experiencing a major change in the way companies compete. Organisations are collaborating with each other in the form of enterprise networks. They are sharing knowledge and resources in order to deliver innovative solutions and access new markets. However, European SMEs are finding this to be a major challenge. They recognise that it is not easy to build relationship with other organisations. Specific support systems and tailored training programmes are required. This paper seeks to improve the understanding of enterprise networks and inter organisational collaboration. It presents the unique characteristics of an enterprise network. The benefits of participating in such an endeavour are also highlighted. Key challenges for owners and managers of SME's are presented based on a qualitative study of SME owner/managers in seven European regions. The remainder of the paper presents support structures that were specifically designed to address the unique requirements of SMEs. This includes a training programme and a web enabled information system incorporating best practice tools and techniques.

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