

“SM”e-business” - Strategies for Success

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ABSTRACT

The World Wide Web (WWW) provides unique opportunities for small and medium-sized enterprises (SMEs) to build effective global infrastructures in at least three ways. First Internet-based infrastructures are relatively cheap; requiring significantly reduced capital investments over proprietary networks. Second, they provide an ever converging and rich environment for effective business networking and inter-organisational process management. Third, they provide SMEs with access to a greatly expanded consumer market through electronic business (e-business). In order to exploit these advantages in a global strategy, the SME needs to adopt an entirely different approach to management that can enable it to deploy an extensive infrastructure network based on shared resources with other firms. This paper presents such a framework and provides a new perspective to strategic infrastructure management in SMEs and to electronic business research. The framework is supported by a number of case examples of SMEs in the global context.

INTRODUCTION

Globally, e-business is projected to rise from the current level of US\$26 billion in worldwide revenue to about US\$ 1 trillion by 2005 (p. 12, OECD 1998). This is due to the huge growth in Internet use worldwide. For example between 1993 to 1997 the number of server computers connected to the Internet was estimated to have grown from one million to 20 million and is projected to rise further to about 120 million by 2001. In response to these radical changes in the global economic environment, many large firms are downsizing in order to improve their ability to respond flexibly to change (Metes *et al.*, 1998). Simultaneously, smaller firms are turning to the Internet as a platform for developing inter-organisational systems and business networks, enabling them to tap into the resources of others and thereby extend the scope of their operations within the emergent virtual markets.

With the increasing digitisation of economic production on a global scale, attention is being focused on small firms as sources of national and global competitiveness, market innovation and job creation in almost all economies (OECD, 1998; Fink, 1998; Kaplan *et al.*, 1997). Information infrastructures based on Internet technologies can facilitate extensive business networking across wide geographical and time zones. They also have the potential to enable the transformation of the business environment of SMEs to “larger than real”.

A number of research studies have focused on the adoption and use of the Internet as a medium for doing business by SMEs (Poon and Swatman, 1997; OECD 1998; O'Connor *et al.*, 1997; Sieber 1998). These studies point to some of their common characteristics with respect to adoption levels, challenges, and general benefits from online infrastructures. While there appears to be a lot of enthusiasm about the Internet and electronic business, current studies show that only a minority of SMEs reap significant benefits from the Internet. Most SMEs use the Internet as a basic communications facility and see the Internet as a cost-effective alternative to the more traditional means (e.g. fax and telephone) of communication with partners or customers. The reasons for the relatively low level of use include: the low level of technological expertise, uncertainty about benefits, low commitment of owner/manger, poor understanding of the dynamics of the electronic marketplace and their inability to devise strategies to leverage online infrastructure for profit. This paper describes a framework developed for SMEs to allow them to effectively manage a global e-business strategy. The authors demonstrate the value of the framework through its application to a number of case studies.

STRATEGIC FRAMEWORK

Figure 1 below describes the broad framework for managing a global e-business strategy within an SME context. The core elements of the strategy are :

- Virtual organisation strategy

- Selecting an appropriate business model to align the strategic objectives with its business activities as well as the electronic market environment.
- Transformation of the scope of business to global e-business
In the following sections a brief description of each of the elements is provided.

THE VIRTUAL ORGANISING STRATEGY

Many writers highlight the feature of a virtual organising strategy associated with electronic mediated work processes, virtual organisations and products (Venkatraman & Henderson, 1998; Grenier & Metes 1995; Tapscott, *et al.*, 1998). Virtual organisations are those that employ extensive networked information infrastructures to attract resources and manage a value chain which transcends organisational boundaries, geographical regions and time zones. The exploitation of these features through the strategic management of a global infrastructure platform can enhance the perception of an extended scope of business even though in reality the enterprise may be operating with a limited physical scope. In other words, the firm may be able to project itself and its products as being available at multiple locations and in varied time zones. To do this organisations need

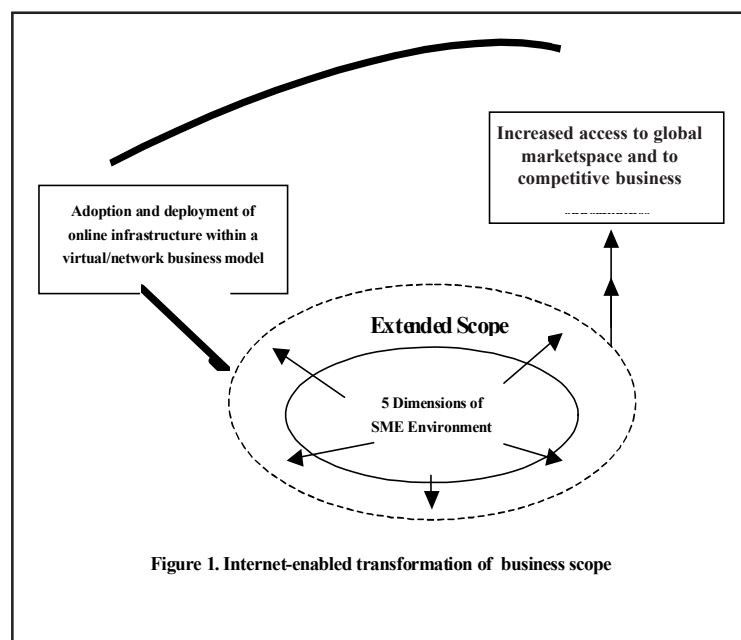


Figure 1. Internet-enabled transformation of business scope

Table 1: Online business models

Online Business Model	Features	Examples
Virtual Face e-Shop	<ul style="list-style-type: none"> • Providing an extra space for presenting organisation & products to a wider market. • Usually involves a single enterprise • Limited commitment to common business goals in relationships with others 	<ul style="list-style-type: none"> • Harris Technology • Boots Online • Hawaiian Greenhouse
Virtual Alliance e-Mall	<ul style="list-style-type: none"> • Involve a number of firms sharing resources and competencies to develop some product offering • Site may represent the common interface for the group or may place varied degrees emphasis on a focal firm while providing visibility to the alliance • Significant use of online infrastructure and e-Commerce technologies • Cross reference to sites of participating firms 	<ul style="list-style-type: none"> • SCB Co-op • LAA
Virtual Community e-Space PORTALS	<ul style="list-style-type: none"> • Represents an electronic marketplace involving a large number of firms and grouping of other online models 	<ul style="list-style-type: none"> • Best of Italy • Sofcom

to identify the extent to which they want to embrace virtuality and then select appropriate on-line business models to support this view.

Choice of Online Business Model

An online business model is a generic organisational format adapted to the electronic market environment and emphasising the use of Internet-based information infrastructure to do business. There is a wide spectrum of online formats that may be broadly categorised under three generic online business models (table 1).

Each category may have sub classifications, which can only represent generalised descriptions with significant overlap.

Virtual Face

In its basic format, the enterprise usually exists as a single business entity with some online presence primarily to advertise itself and its products. The business may also be organised around the virtual face model as the primary point of access to their entire business and products. Harris Technology, Sydney and Boots Online, Melbourne, are typical examples of online SMEs employing this model to enhance their competitive performance. While Harris Technology targets the Australian national market in computer related products, Boots Online is a global oriented SME selling to worldwide markets. Both businesses have witnessed substantial growth in sales and profit margins within two years of going online. In an elaborate form of the virtual face model, as in the case of Harris Technology, the SME may undertake extensive business activities online, including sourcing of resources and services, communication and collaboration with other firms, and the management of its customer base. This will usually require a significant re-definition of business processes to enhance the information processing aspects and to ensure a high level of integration and interoperability with the stakeholder environment. Another requirement will be the development of enhanced online information management skills in employees.

Virtual Alliance

An SME employing this model participates in a cluster or group of au-

tonomous businesses both online and offline, and organises its core operations and offerings around the shared resources, competencies and markets that the group create. An example of this type is SCB Co-op, Scotland where the online infrastructure has enabled very small traditional Scottish breweries to market their products under a common label across the UK and globally. Leading Agents in Australia (LAA) is another example of a virtual face business model. Even though each member of the alliance maintains an elaborate website, their alliance is not uniformly represented online as a single site. The main gains of the online infrastructure for the group is fast access to information that they share about regional opportunities. Also extensive referrals to each other provide potential clients and visitors to their sites an assurance of dealing with a well connected group of professionals in the Australian real estate market. This increases trust in their services and is a source of competitive advantage.

Virtual Community

The third generic category of online business model is the *virtual community*, which is a large collection of firms in the online market, including other stakeholders such as customers and government agencies. In this environment the focal SME is highly integrated with those of others and its separate existence is hardly discernible to stakeholders of the community. Examples of a virtual community are portal services such as BOI (Best of Italy) Srl. and Sofcom.com.au. In both examples, the virtual community owner supplies and manages the online infrastructure on behalf of participating SMEs. This reduces the need for substantial investments in technology and infrastructure management. Participant enterprises can concentrate on selling their products. On the other hand clients are offered a one stop access to a wide range of goods and services and at reduced prices due to the relatively low cost associated with marketing and distribution channel management for the vendors.

Table 2 S-M-A-L-L - Key Attributes of SME Environment

Size (S)

- Number of employees
- Number of branch offices
- Value of assets
- Annual turnover of Business
- Investments in IT

This attribute may be defined in terms of number of employees, sales turnover, and assets, etc. It may also include the size or investment in infrastructure. The adoption and management of a successful online infrastructure strategy may result in an increase or decrease in size.

Market (M)

- Share of market (value of sales)
- Product mix (variety and novelty)
- Number of states/ regions covered

This attribute describes the firm's share of the market and the number and variety of products. By developing an online presence it is possible to extend its markets and reach out to a wider customer base. It is also possible to develop new products and offerings based on exposure to opportunities made available to the firm on going online

Activities and Processes (A)

- Nature of activities
- Information intensity of activities And products
- Level of electronic mediation
- Changes in products/ processes

Application of online infrastructure can lead to increased integration and enhanced efficiency of processes. The infrastructure can also support re-engineering of business processes and to enhance the value added. New opportunities can emerge innovative products may be developed through the application of the infrastructures.

Linkages (L₁)

- Number of strategic partners
- Nature of partnerships/networking (regularity, permanence)
- Type of contractual arrangements

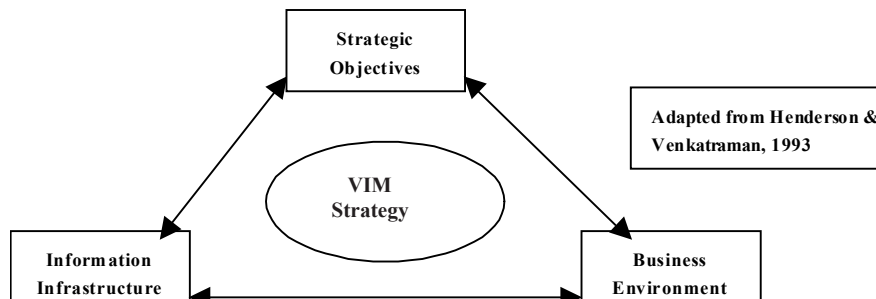
This attribute refers to relationships and co-operative arrangements, which span the firm's internal and external environment. Also implied here is the frequency of forming and breaking links with others.

Locational Diversity (L₂)

- Spread of regional/ international branches
- Range of time zones and Extent of asynchronous working

This describes the geographical spread of sites from which the firm's core operations are conducted. It also involves the diversity of time zones that the enterprise can effectively manage. With an online infrastructure individual or small groups of employees may work from wider geographical locations and/or divers time zones without establishing branch offices. On the other hand the online infrastructure may allow concentration of total workspace

Figure 2: Alignment of objectives, business environment and infrastructure



TRANSFORMATION OF SME ENVIRONMENT

S-M-A-L-L Attribute Model

Central to the global strategy of the online SME is the virtual transformation of five key dimensions (or attributes) of the SME environment. These attributes, which capture the scope of business operations of the SME, are:

- Size/value of assets and resources
- Market coverage and product mix
- Activities and processes,
- Linkages and relationships within environment, and
- Locational diversity/scope.

Table 2 provides detailed descriptions of each attribute and the associated organisational variables. For any SME, relative values can be assigned to each of the attributes using a set of discrete values {Low, Medium High} on a Likert-type quantitative estimation.

Virtual Infrastructure Management

Employing an adaptation of Henderson and Venkatraman's (1993) strategic alignment model, figure 2 shows the interaction of the SME's strategic objectives, information infrastructure and its relevant business environment.

The firm seeking to leverage its information technology infrastructure must work out a close fit between these three aspects. In general, the strategic objectives of an online SME will relate to seeking increased access to wider markets and resources through extension of its environment. The firm's infrastructure (based on Internet technologies) and its industry environment (i.e. e-business) present a virtual market environment. Thus it becomes critical to identify and exploit those features of the infrastructure that facilitate and optimise virtual values in the business chain. The strategy for alignment and exploitation of the online infrastructure to achieve increase virtuality may be described as a Virtual Infrastructure Management (VIM) strategy.

Based on the above discussions on virtual organising, an effective virtual infrastructure management strategy would include the following aspects:

- Develop components of the infrastructure that add value to the business chain
- Install networking features — e.g. to facilitate collaborative effort and linkages among stakeholders
- Use of infrastructure to develop virtual values of process, products and image - e.g. through customer interaction with web-site content including product information, use of graphics for retention and encouragement to re-visit, cultivate value for virtual products
- Cultivate information skills and virtual culture in customers - e.g. through the web site tutorial, development of virtual communities (e.g. newsgroups, chatlists, forums)

The following cases illustrated various aspects of the infrastructure management to extend the business environment of online SMEs and how this leads to enhanced market performance.

GLOBAL CASE STUDIES

All of the following case studies are based on extensive website as-

essment and secondary data sources and were selected as examples of SMEs who have successfully exploited the Internet infrastructure to enhance their global operations and performance.

Virtual Face

Hawaiian Greenhouse, Inc

Hawaiian Greenhouse, Inc.' is a family owned business located in Pahoa on the island of Hawaii. The installation of an online infrastructure has resulted in a remarkable transformation of the business scope and led to increased profitability. The company, established since 1965, has been growing anthuriums and other tropical flowers and foliage and shipping them worldwide. Traditionally it has thrived on growing large crops and selling to a small group of wholesale customers who in turn market them worldwide. The effects of globalisation and intensifying competition from many other growers in the region have prompted the company to rethink its business logic. Focusing on retailing as a more lucrative sales channel, the company set out in 1997 to exploit the capabilities of the Internet to increase its sales volume and expand its customer base, while keeping its operational costs to a minimum. It started by automating its order fulfilment, accounting and customer-tracking functions with an IBM e-business solution based on Lotus Notes and Lotus Domino application environments. Since then, the company has developed a fully functional web-enabled shopfront based on the Lotus Domino Merchant. There has been a complete transformation of core business processes. In less than a year Hawaiian Greenhouse's e-business has grown tremendously. Currently, over 1,400 customers visit its site each month, generating 10 to 15 percent of the company's new orders. The company makes \$350,000 worth of retail business today compared to the \$175,000 when it was operating as a wholesale business. Also it expects to double retail sales within another year. Other performance improvements include: 100% annual growth in retail sales, 100% ROI in 18 months, 10-15% revenue from online orders, 50% reduction in processing time, and improved customers services. The business plans to add new products to its portfolio including the possibility of marketing products of their competitors on its site. <www.hawaiian-greenhouse.com>

Virtual Alliance

Scotland's Craft Brewers Co-operative² (SCB Co-op)

SCB Co-op is an online SME made up of six Scottish SMEs and a bottling plant. The co-op was formed to deliver global sales and marketing functions for the participant enterprises that specialized in traditionally brewed Scottish beers in Lugton, Scotland. The Co-op was formed to pool the limited resources of individual SMEs to create a winning business image and a competitive product brand. Products of members are promoted under the Scotland Craft Brewer Cooperative brand name to large UK supermarkets. The Co-op's strategic objectives in going online are to access global markets, expand regional market share, create jobs and increase revenues. Through the web site the Co-op has achieved significant performance growth that would have been difficult to achieve through conventional marketing strategies. Products of the Co-op have been submitted to the Canadian Liquor Board for sampling. As a result of their online strat-

egy, SCB Co-op is forecasted to create 75 new jobs within a year and then build a brand name to rival better known traditional brewers on a world scale.

In order to overcome the lack of technical skills and financial resources for developing an online infrastructure, the Co-op chose the IBM HomePage Creator service, which enabled it to establish the working website at a very low cost within a few days. The simplicity and low cost has made it possible for SCB Co-op to concentrate on its core operations of co-ordination and developing a competitive global brand.

The site features product information, nutritional information and recipes and links to some of its major partners. One of the major business partners is ASDA, which is one of Britain's large supermarket chains. The Co-op's site integrates seamlessly with that of ASDA. Clients in Britain, or those planning a visit may also purchase the Co-op brand from any of the 31 ASDA stores across UK. The ASDA website features an innovative search engine, Store Finder, for locating any ASDA store by entering name of your location. Search results provide lists of nearby ASDA stores with details about address (including telephone and fax), distance from central location, and a map. All these extend the infrastructure commanded by SCB Co-op in developing its global marketing strategy. <www.lugton.co.uk>

Virtual Community

Sofcom

Sofcom, is a Melbourne company acting as an electronic intermediary, which provides, in addition to other online content publishing, a virtual shopping mall for about 60 virtual storefronts. Sofcom may be described as an example of a virtual community. Members of the community engage in extensive linkages with each other and with a host of e-business service providers through Sofcom. The mall advertises over 4835 products in about 60 stores. There are ten categories of stores including: Apparel; automobile; business services; computers and electronics; gifts and collectable; home design; perfumery and jewellery; entertainment. Other electronic market services and facilities provided by Sofcom to its virtual community are: business information, Internet directories publishing, websites/shop hosting, links to the Australian stock exchange, business newsletter and advisory services.

Sofcom has an extensive online infrastructure to support its product lines and to manage the virtual stores of other businesses. All transactions at Sofcom pass through Sofcom's SSL secure server. The site offers an online Store Builder facility for potential online storeowners. The facility takes potential store owners step by step through the process of setting up a storefront at Sofcom and doing business online. There is a flat charge of AU\$ 40 per month for stores available to the public and selling. Potential storeowners may develop and test run a store for free. www.sofcom.com.au

DISCUSSION AND CONCLUSION

In all cases, there is a common thread linking the strategic intents of the enterprise to go online and the choice of infrastructure components. While not all made explicit commitment to extend all the attributes defined in the framework, analysis shows that these were consistently modified directly or indirectly as a result of the application of the online infrastructure. Also, the benefits from virtual transformation of business scope always led to significant improvements in competitive performance even where it was not easy to quantify.

This paper has outlined a framework for analysing an online SME based on the concepts of virtual organisation and global information tech-

nology management. The *S-M-A-L-L* framework describes five dimensions of the business that may be transformed with the strategic application of information technology. These are the size of resources, market coverage, activities and processes, linkages and locational scope. Effective extension of the SME's environment along these dimensions should increase its access to resources and opportunities and enhance its ability to compete in the global market. The transforming factors are the firm's chosen business model, the technological infrastructure and the virtual infrastructure management strategy. Also corporate vision of the future, top management commitment, nature of business, level of adoption of/expertise with IT are relevant to the virtual infrastructure management approach to the global strategy of online SMEs.

FOOTNOTES

1. Case features on IBM e-Business website <<http://www.software.ibm.com/solutions/internet/G325-4070-00.htm>> last accessed August 1999.
2. Secondary data on case obtained from Chappel and Feindt (1999). Analysis of E-Commerce Practice in SME, ESPRIT Project KITE, <http://kite.tsa.de>

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