Engaging SMEs in E-commerce: The Role of Intermediaries within eClusters

DAVID H. BROWN AND NIGEL J. LOCKETT

INTRODUCTION

Within the context of e-commerce generally this short paper addresses some issues relevant to the involvement of small and medium enterprises (SMEs). Hither to such organizations, which in the UK total 97% of businesses (DTI 1999) have been largely by-passed in the recent reinvention of electronic business-to-business and business-to-consumer transactions. In particular the paper pursues three strands of thinking: First, what is the potential for electronically mediated collaboration and business support for SMEs? Second, within such an arrangement, what are the roles of intermediaries and trust that would enable these groupings to function? Finally, what are the business and pricing models that could underpin this kind of development? Significant progress has been made in the first area of interest, where ‘natural’ communities of SMEs have become the main focus and work continues on the others.

eClusters are digital enterprise communities enabled by one or more intermediaries and are based on a new type of electronically enabled inter-organizational system (IOS) (Lockett and Brown 2000a). These eClustered IOS are especially significant precisely because they can lead to the formation of new forms of inter-organizational networks (ION), rather than supporting existing configurations. These new forms are themselves manifestations of new business models for electronic markets based on increasing functionality, innovation, integration and value. Timmers (2000) has proposed a broad classification based on functional integration and degree of innovation from E-Shop to Value Chain Integrator and Tapscott (Tapscott et al. 2000) differentiates by control and value giving five distinct types of Business Webs (BWeb). A Business Web is an elaborate network of suppliers, distributors, commerce service providers, and customers that conduct business communications and transactions on the Internet and other electronic media in order to produce value for end-customers and for one another. Tapscott’s classification is usefully broad and a number of well-known examples fit within it (see Table 1).

Within these business webs existing and proposed business models proliferate and currently include: Interconnected eMarketplaces (IEM) (Lief et al. 1999), Value Clusters (Fooladi and Whalen 2000), Guaranteed Electronic Market (GEM) (Rowan 1999), E-Hubs (Kaplan and Sawhney 2000) and Internet Business Community (IBC) (Hewlett Packard 1999). An Internet business community is a well defined set of businesses that interact over the Internet to improve their effectiveness and

Abstract

The potential for the emergence of digital enterprise communities enabled by one or more intermediaries, termed eClusters, has been predicted from empirical research in business communities of SMEs in the UK. The role of intermediaries, which will be pivotal to the formation of eClusters, is examined in this paper and forms part of a wider investigation into the nature of digital enterprise communities. One conceptualization of the role of intermediaries is the provision of a Trust Platform. As with IT outsourcing generally it is large companies that have been early adopters of application service providers’ (ASPs) services with little penetration in the SME sector. It is the notion of community and emergent properties of an eCluster that could provide the ‘key’ to this market and lead to the evolution of community-centric ASPs.

Authors

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efficiency. Together these community-based Internet business models constitute a class of IONs generally referred to as digital enterprise communities. Of these the IBC concept, originally proposed by Hewlett-Packard Laboratories, is of particular interest since the early research findings suggest that this concept resonates strongly with potential SME communities. Digital enterprise communities can be differentiated by two primary dimensions, namely commitment of the intermediaries (low to high) and commitment of the members (low to high). Commitment is a relative measure of the level of obligation to participate in either role, which may be in the form of relative resources, contractual agreements, importance in maintaining reputation or focus of business activity. In order to place the existing and potential business models in a relative context a taxonomy, based on commitment, is proposed (updated from Lockett and Brown 2000a). This is shown in Figure 1 and depicts four basic types of digital enterprise community:

- **Drifters** are characterized by existing ISPs who provide a base level of intermediary commitment with low member commitment where switching costs are low and mobility is high.

### Table 1. Classification of Business Webs

<table>
<thead>
<tr>
<th>Type</th>
<th>Economic Control</th>
<th>Value Integration</th>
<th>Example</th>
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<tbody>
<tr>
<td>Agora</td>
<td>Hierarchical</td>
<td>Low</td>
<td>EBay, Priceline</td>
</tr>
<tr>
<td>Aggregation</td>
<td>Hierarchical</td>
<td>Low</td>
<td>Amazon, Chemdex</td>
</tr>
<tr>
<td>Alliance</td>
<td>Self-organizing</td>
<td>High</td>
<td>Linux, AOL</td>
</tr>
<tr>
<td>Value chain</td>
<td>Hierarchical</td>
<td>High</td>
<td>Cisco, Dell</td>
</tr>
<tr>
<td>Distributive network</td>
<td>Both</td>
<td>Both</td>
<td>AT&amp;T, UPS</td>
</tr>
</tbody>
</table>

Source: Tapscott et al. 1999
• **Supporters** increase the commitment of intermediaries beyond that of an ISP by specialization and community obligation, like ASPs.

• **Players** are dominated by value chain communities and alliances, like Cisco and JAVA respectively, where member commitment is high.

• **Teams** are represented by proposed future communities namely Interconnected eMarketplace (IEM), Guaranteed Electronic Market (GEM), Internet Business Community (IBC) and Community-centric Application Service Provider (CASP) with all requiring increased commitment from both intermediaries and members. All four types fall within the general class of eClusters and are shaded in Figure 1. Teams are representative of eClusters.

Precursor digital enterprise communities are already well established with increasing levels of commitment for both **players** and **supporters** evident. Many examples of these business models will converge as both intermediary and member commitment increase to form **teams** around the eCluster business model. Central to this model is the notion of community and the concept of communities of practice, both of which can help drive strategy, innovation and transfer best practice (Wenger and Snyder 2000). Such eClusters will have both elements of process and transaction e-commerce. Although currently there are many ‘natural’ communities within industry sectors, which are potential communities, these are typically loosely linked and are not electronically mediated. This is especially the case for the SMEs.

**CHARACTERISTICS OF POTENTIAL COMMUNITIES AND BUSINESS MODELS**

It was demonstrated in the early empirical research that it is the businesses that have the most to gain from the increased interactions resultant from community membership that expressed the strongest interest in the Internet business community concept (Lockett and Brown 2000a). This earlier research was rooted in the concept of embedded case design as suggested by Yin (Yin 1989) and centred on the investigation of the interactions and views of three ‘natural’ communities of SMEs in the UK. This was frequently linked to the perception of an external threat or simply the need to improve business performance. However, all the SMEs emphasized technology and security as the major barriers to the adoption of the IBC concept.

The digital nature of eClusters will mean they exhibit characteristics similar to virtual organizations (VO), even though they are based on ‘natural’ communities. As shown in Table 2, the characteristics of a VO can be divided into primary and secondary.

Drawing on the characteristics of VOs together with the research into the IBC concept, suggests the key attributes of a potential eCluster, namely:

- a strong sense of community;
- a perception of external threat;
- a requirement for intermediaries;
- an opportunity for increased business performance;
- a requirement for both e-process and e-transaction;

- a demonstrated basis for trust relationships.

From these proposed characteristics examples of potential eClusters include; the homeopathic industry, the organic movement and groupings of independent IT providers. Finally, it is possible to categorize eCluster business models into three different types, namely governmental, institutional and commercial depending on the community owner (see Table 3).

**CONCEPTUALIZATION OF INTERMEDIARY ROLES**

The roles of intermediaries are pivotal to the eCluster business model and can be summarized as the provision of the necessary structure, services and governance that will enable the communities to function. Underpinning the whole eCluster concept is the Trust Platform on which the digital enterprise communities operate and comprises structure, services and governance (Lockett and Brown 2000b). Each of these in turn is provided by three kinds of intermediary, namely technology, enterprise and community, Figure 2. The overriding importance of the trust platform is to facilitate the formation and development of eClusters from ‘natural’ communities of SMEs.

**Table 2. Characteristics of Virtual Organizations**

<table>
<thead>
<tr>
<th>Type</th>
<th>Characteristic</th>
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<tr>
<td>Primary</td>
<td>Partial mission overlap with partners also operating outside the VO. Geographically dispersed. Semi-stable relations enable partners to survive outside of the VO. Customer based and mass-customization with the virtuality of the relationships providing flexibility to meet customer needs. Based on core competencies that lead to synergy and any resulting excellence. Dependent on innovation either technical or cultural in matter with innovative products or services necessary.</td>
</tr>
<tr>
<td>Secondary</td>
<td>One identity distinct from that of the individual partners. Based on trust for information is shared between partners. Based on IT, which has led to the spread of VOs. Distinction between strategic and operational levels at managerial level.</td>
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Source: Bultje and van Wijk 1998
Portales et al. (1998: 399) state that trust is ‘one of the most critical elements for today’s business success’ and ‘seems a difficult thing to achieve’. Meyer and Alvarez (1998: 275) argue that trust is associated with inter-organizational alliance success and as trust deepens knowledge transfer will increase, which may lead to a competitive advantage (1998: 275). Handy (1995) in addition to stating seven principles of trust for VOs also prescribes membership as a concept centred on trust for VOs and that membership engenders a sense of belonging to a community. Clearly the virtual nature of eClusters adds a further dimension to achieving and maintaining trust both within the trust platform providers and the members of the community. Each intermediary has a part to play in achieving the required level of trust, which will enable the community to interact. In the interconnected environment of digital enterprise communities trust will need to be proven at a base level of data security and integrity level before trust-based inter-organizational relationships can develop. The notion of fairness may be a particularly important characteristic of the trust platform and reinforce the role of the intermediaries as trusted third parties.

The role of the technology intermediary is to provide the ICT platform on which services can be provided and could include hardware, security and communications. The role of the enterprise intermediary is to provide the services including applications software, hosting and consultancy. The technology and enterprise intermediaries can be considered as generic and are trusted third parties. In reality these functions could be provided by one or more organizations. The community intermediary, being specific to a particular eCluster, has a critical role in generating the initial trust and gaining the commitment of potential participants to enter the digital enterprise community. It is the community intermediary, providing a broad governance function, that is a distinguishing characteristic of an eCluster. Although unlikely it would be theoretically possible for a community intermediary to also provide structure and services, due to the diverse nature of the elements that constitute the trust platform. More elaborate platform conceptualizations or models have been proposed including Media Reference Model with four layers and four phases (Lechner and Schmid 2000), VEGA Reference Model with four layers of Business, Process, Service and Infrastructure (Suter 1999) and a Framework of eServices divided into three layers of basic services and five layers of business services (Kluber et al. 1999). Radjou (1999) predicts that the sophisticated collaboration needs of enterprises will be supported by new emerging platforms of real-time coordination tools – Coordination Platforms. These platforms will have at the centre Internet-based application programming interfaces (APIs) with supporting technologies, including: email, calendaring, instant messaging, conferencing, document sharing, project management and workflow. The trust platform provides a simple conceptualization that highlights the collaboration required by intermediaries in order to achieve the appropriate levels of trust necessary for member participation and commitment.

<table>
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<th>Table 3. eCluster Business Model Types</th>
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<td>Model Type</td>
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<tr>
<td>Governmental</td>
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<tr>
<td>Institutional</td>
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<tr>
<td>Commercial</td>
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Source: Authors
COMMUNITY-CENTRIC APPLICATION SERVICE PROVIDERS

The emergence of the application service provider (ASP) sector has attracted much interest and speculation, with IDC forecasting a market opportunity of $4.5 billion by 2003 (Gillian et al. 1999) and Durlacher estimating the European ASP market at $100 million by the end of 2000 and $1.5 billion by end 2004 (Wendland 1999). Wendland notes that although ASP solutions are targeted at the SME market it will not be a profitable segment for top-tier ASPs. Furthermore Weller (1999) states that ‘it has been large companies that have been the primary drivers for ASP solutions rather than SME companies’ and that this ‘sweet spot requires further education’. Micro, small and medium sized enterprises, especially in the UK, have been slow to grasp the opportunities for business change. Currently the UK’s micro and small companies are at the bottom of the league table of major European economies and compared with the US, micro businesses in the UK are three times less likely to have a website (DTI 1999). There is an obvious and interesting parallel here with IT outsourcing, which is one of the highest growth rate industries of the last decade. Overwhelmingly, however, this industry is centred on large companies, with little penetration in the SME sector. Clearly, this is a matter of economics – large accounts can be profitable for the outsourcing companies. The challenge for potential intermediaries is to derive the funding model that allows small individual accounts to be serviced profitably. This suggests large numbers – already experience on the web indicates that this is possible (Carr 2000). ASPs continue to develop products targeted at the SME sector, including Corio with Express Financials (Corio 2000a) and NetStore with hosting Exchange e150 (NetStore 2000). Silva (2000) states that ‘a number of software and services companies are developing the complementary solution the eMarketplaces will need to entice greater small business participation’ via full ASP solutions. It is apparent that most of these SME-targeted ASP service offerings are focused at individual companies rather than groupings, with the notable exception of B2B eMarketplaces where vertical segmentation is a factor. There are now many examples of vertical eMarketplaces including: e-Steel, WebMD, Chemdex & BuildNet – however it is important to note that SMEs are included in the market as part of the supply chain or trading community rather than as an economic cluster (Porter 1998). The importance of eClusters as a market opportunity has yet to emerge in the ASP sector however the authors predict the emergence of Community-centric ASPs (CASP) to serve these digital enterprise

Source: Authors

Figure 3. Evolution of Community-centric ASP


Models for Business to Business Trading, Chichester, UK: John Wiley & Sons.


