E-COMMERCE/BUSINESS SUCCESS FOR SME GROWTH

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Abstract: - This paper describes our research work on using e-business as a growth strategy for Small to Medium size Enterprises (SMEs). A brief review of e-business is given together with the benefits of, and success factors for its use in SMEs. Two case studies are presented. The first describes our work on the Greater Merseyside Broadband Project with 50 SMEs, which aims to develop SEMs' awareness, capability, barriers, competitive strategies, current state and future intension of e-Commerce/Business. The second one describes how a company employing 25 people has used and integrated their system to become the supply chain leader in their field to an international aircraft manufacturer.

Key-Words: - SME growth, e-commerce/business, integration, strategies, case studies, benchmarking, core competencies, best practice assessment, and implementation.

1 Introduction

The research described in this paper arose from the Greater Merseyside Broadband Project (GMBP) being run by our Technology Management Group (TMG). Between January 2005 and January 2006 for this project, we aim to:

(1) Assess the level of e-C/B and Broadband usage in SMEs on Merseyside.

(2) Work with Sector Directorates to assess specific sectoral needs.

(3) Assist SMEs in understanding and using e-C/B and Broadband.

(4) Hold seminars for SMEs to promote e-C/B and Broadband usage.

(5) Produce a basic e-C/B and Broadband Workbook.

A questionnaire/assessment of e-C/B has been developed (and piloted with SMEs for verification) and sent to 100 SMEs, structured interviews with 20 SMEs have also conducted after analyzed the result of the questionnaire.Because of limited space, the theory behind the work is described only briefly with the main emphasis being placed on the practical work with SMEs. Broadband is basically a business tool. Whilst "being on-line all the time" is attractive, the real benefit from Broadband adoption and use is for business development and growth. This means some form of e-Commerce/Business (e-C/B) and not just website presence. The basic Merseyside problem is that most SMEs have neither the knowledge nor expertise to adopt this way of trading.

Work with some of the companies has been completed therefore the overall e-C/B activities, capabilities, issues and strategies of SMEs within the region have been explored and because of the variety of issues raised, we will continue working with the companies to meet their needs.

2 e-Business: content and definition

We conducted a literature review using online search engines, journal reference sources and library systems. This search identified more than 100 papers in the past few years that had clear relevance to our aims. An analysis of these papers allowed us to classify and catalogue them into specific areas of interest. There were some 40 key papers that considered the major issues, benefits and strategies for implementation of e-business in SMEs. These were reviewed in detail for the purpose of the foundation of our e-Commerce/Business research

programmes. There are many definitions of e-business, but they all imply some manner of electronic operation for business transformations. For example, IBM (undated) use: "The transformation of key business processes through the use of Internet technologies". Strowbridge (2000) suggests that e-business is using electronic information to improve performance, create value and enable new relationships between businesses and customers. However, e-business is not just about e-Commerce transactions over the Web; it is the overall strategy of redefining old business models with the aid of technology, to maximise customer value and profits (Kalakota & Robinson [2001]). To paraphrase Krishnan (2002), "Forget B2B or B2C, e-business is about P2P- path to profitability"

There are many more definitions of e-business but we favour those that emphasise the fact that the ICT technologies are being used to extend and/or develop business systems within a strategic business framework. Thus for the purpose of our applied research programme, our definition of e-business covers the full panoply of ICT based business systems that have a presence outside of the company.

3   Success factors for e-C/B in SMEs

Taylor & Murphy (2003) investigated e-business success factors in SMEs. A critical factor for e-business activity found in all firms was commitment. This usually came from a sound business strategy, developed into an e-business/ICT strategy with clear objectives/timescales. Using the work of Jeffcoate et al (2002), we categorised the success factors into three stages of development i.e. Start-up, Establishment and Growth. Fillis et al (2004) suggest that the successful adoption of e-business can be achieved by developing a set of e-business competencies relating to factors such as innovation, finance, productivity, quality etc. Weiber & Kollman (1998) also identified success factors in the market place. Stone (2003) identified success measures in e-business around the enhancement of customer management including multi-channel customer management.

The choice of a business model that effectively enables the firm to manage its market interactions is a critical success factor. This represents a dynamic profile of the business in terms of its vision and goals, electronic market orientation. Tetteh & Burn

(2001) stressed relations with other market players. The ability to plan an e-business infrastructure course swiftly and to implement it ruthlessly as keys to success was defined by Kalakota & Robinson (2001).

In today's world, it is difficult for businesses to succeed by going it alone" (Kalakota & Robinson [2001]). Therefore, collaboration is an important success factor for SMEs. The same authors also suggest that "Thinking e-business design more than technology" is an important factor for success in every step of the value chain.

"SMEs can achieve global competitiveness without increasing their size, but rather by building on their virtual or soft assets in order to expand. These virtual assets include information skills, digital resources, and competencies for managing inter-firm relations and collaborative engagements with other firms." (Tetteh & Burn [2001]).

4   Our e-C/B maturity/stage model

We worked with companies that ranged in size from four to 70 employees and their e-business activities ranged from a basic website to very sophisticated systems. The majority of the companies would like to grow their business but do not quite sure how to get there and some of them even do not aware where should them be. A model which can describe the logical evolution of e-C/B involving different stages of development, each stage being better in some sense than the previous stage, can be useful in providing a roadmap for improvement to companies. (Subba Rao and Glenn Metts) We defined it as e-Commerce/Business maturity/stage model, a stage is a set of descriptors that characterise the evolutionary nature of e-commerce based on previous stage model as below:

1 **Start Stage:** Little/no ICT use, skills and expertise. Willing to uptake e-Commerce/Business but with only limited or no knowledge and awareness.

2 **Entry Stage:** Starting to adopt e-Commerce/Business but just using email, basic IT skills some knowledge and awareness of e-Commerce/Business.

3 **Presence Stage:** Using e-mail for effective internal and external communication and website only for publishing information.

4 e-Commerce Stage: Range of ICT skills, mid-level knowledge of e-Commerce/Business. A functional website that can achieve online ordering, Internet marketing and online transaction.

5 e-Business Stage: Companies have good level of ICT knowledge and application, of skills. Linked CRM system and integrated supply chain.

6 Transformed Stage: Completely integrated with suppliers, customers and partners in a "collaborative organisation".

In the work with various SMEs, we have found the maturity/stage model to be extremely useful to us in that we can classify SMEs' current e-C/B status. It increases self-awareness to companies, provides a possible vision of ideal future statue and the gap between current situation, and also motivates them to create completive strategies working towards the goal. We suggest that companies should develop the business step by step, each lower stage would be a good foundation help them to move forward. We believe that any e-business implementation should proceed according to the maturity/stage model, with each stage being fully reviewed before proceeding to the next one.

5 Our practical work with SMEs

The table shows the nature of a small enterprise, from our sample companies, 38% of them only have 1-9 employees in total and 53% of them have 10-49 employees but most of their approximate sales turnovers in the last financial year were between £250,000 to £1,000,000 and even over £1,000,000. The result show that SMEs are key players and main contributors to today's economy. (see table 1)

No. of employee	Percentage of employee	Turnover (in 000s)	Percentage of turnover
1-9	38%	Below 100	9%
10-49	53%	100-249	15%
50-99	6%	250-1,000	32%
100-249	3%	Over 1,000	32%

Table 1, Company size and turnover

5.1 Questionnaire: The Greater Merseyside Broadband Project

We conducted a questionnaire to 34 pilot companies (selected from our database of some 600 SMEs),

which aimed to assess the level of e-C/B with the company and Boadband usage in SMEs on Merseyside. Interviews were also conducted following the responses. The questionnaire captured information on their attitudes to e-C/B, current e-C/B activities, levels of the integration, e-C/B future intention, supply chain involvement, ICT capabilities and investment. We have not calculated out a statistical data analysis for this survey, but the captured information allowed us to focus on structure interviews in order to explore more insight of e-C/B activities in SMEs. We have been also working closely with 4 SMEs and more projects will be continued until January 2006 to define strategic implementation and all relevant details of e-C/B in local SMEs.

The responses from this questionnaire related to a number of important areas, including:
(1) e-C/B uptake

(2) Companies' ICT capabilities

(3) Investment in ICT

(4) Companies' current e-C/B status

(5) Companies' future e-C/B intention

5.1.1 Current e-C/B status

Table 2 shows the result for the current e-C/B status:

No. of companies are involved in e-C/B at present	No. of companies are not involved in e-C/B at present
24	12

Table 2, e-C/B status

70% of our sample companies have taken up e-C/B as a part of their business strategy but 30% of the companies are not involved in any e-C/B activities at present that we were particularly interested in. The main reasons causing them to fail in their uptake e-C/B were identified after interviews:

(1) Lack of awareness and knowledge

(2) Lack of skills and expertises

(3) Lack of IT facility/appropriate systems

(4) Lack of capabilities

(5) Don't have broadband in the area

5.1.2 ICT investment

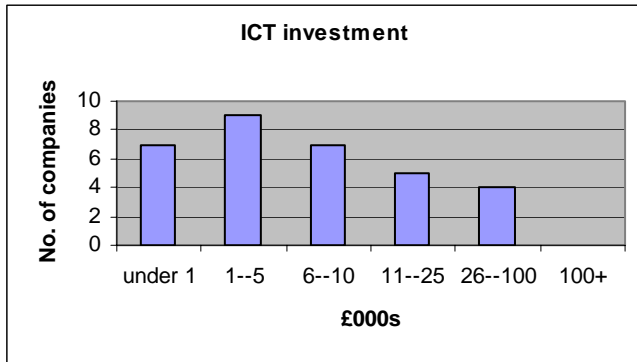Table 3 shows the result for the ICT investment in those companies:

Table 3, ICT investment

The key points are:

(1) On average, our pilot companies have invested around £3000 in ICT.

(2) None of these companies have invested their ICT over £100,000.

(3) 20% of these companies' ICT investments are still under £1,000 in total.

(4) The results also imply that SMEs are lack of funding for e-C/B uptake and implementation.

Most of these companies are willing to invest and upgrade their ICT system including website, software and hardware in order to reach the highest stage possible in the next 12 months according to our interviews.

5.1.3 ICT capability

Table 4 shows the results for the current ICT capability and the impact on integration level of e-C/B:

Type of ICT capability:	In-house expertise	External contract	Ad-hoc basis
No of companies	9	10	15
Average stage	4	3	2

Table 4, ICT capability

The key points are:

(1) Nearly half (44%) of our pilot companies call for ICT support on an ad-hoc basis when required. This normally involves quite simple activities such as getting online, using e-mail, or maybe using website only for publishing information. We categorize them to lower e-C/B stage. (Stage2-"Entry Stage")

(2) The companies are categorized above e-C/B stage 4-"e-Commerce stage" normally have ICT expertise in-house. These more likely have high level of integration such as linked CRM and integrated supply chain systems in order to deal with complex e-C/B applications.

(3) 30% of companies have a support contract with an external company. These have a reasonable good level of ICT knowledge and skills and are able to involve sensible (mid-level) e-C/B activities including Internet-marketing, online-trading.

5.1.4 Current e-C/B statue and future intension

Table 5 shows the results for current e-C/B status and future intension:
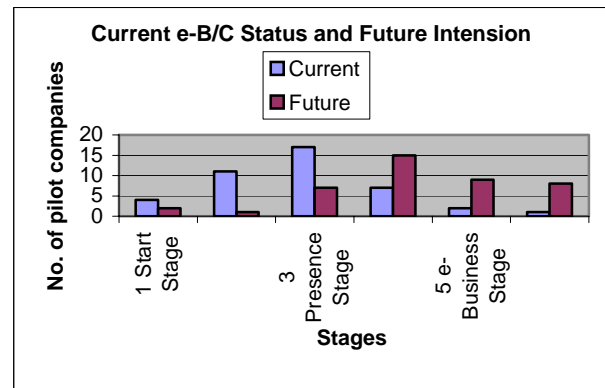

Table 5, Current e-C/B status and future intension

The key points are:

(1) There are four companies still at level 1-"Start Stage" where no electronic activities exist and 32% of companies are currently only at level 2-"Entry Stage" where no website exists.

(2) 50% of our companies are currently at level 3-"Presence Stage" where email is used for

internal and external communication and a website is use for publishing information.

(3) All of companies are willing to shift their e-C/B to higher stages in the next one to two years. 44% of them are willing to reach level 4- "e-Commerce Stage" where online ordering, Internet marketing and online transaction are appeared to be core characteristic activities.

(4) Two companies have reached level 5 - "e-Business" stage. 26% of our companies would like to be at that stage in the future.

(5) There is only one company that has fully integrated systems and has reached highest level-"Transformed Stage". In future, 24% of our pilot companies are willing to reach that Stage with fully integrated system.

5.2 Case study: A highly integrated SME (Chas E Prossor Ltd, Liverpool, UK)

One of our companies is so successful in its e-business activity that it is the lead supplier in a multi-national company's specialist Health and Safety product supply chain and we investigated the reasons for this. The products are sourced by Prossor from various suppliers for delivery to, and use within the multinational. Prossor has leveraged the captured information to separate issue level transactions from accounting transactions. By use of an active web site, they have formed a collaborative partnership between themselves, the suppliers and the end customer to the advantage of them all. The system authorises issues at various levels and the usage and replenishment of stocks automatically. The critical factors are:
* Product range is subject to UK Health and Safety legislation; they need to track the uses to which they are put.

(1) Their unique selling point is Health and Safety Compliance.

(1) Using the Internet to support and provide a framework for their compliance activities and on site-compliance activities via partnership activities requiring sharing of information.

(3) Development of a dynamic database driven website to integrate compliance and customer's business processes.

(4) Interfacing with and enhancing the customer's existing systems.

There are two main lessons from this. The first is that the evolution of the system was based on strategic business needs and not driven by a desire to use the Internet per se. The compliance activity started some ten years ago and was transferred to a static web site six years ago. The active web site has been in development for the last six months. The second is that even a small company with extremely limited resources can exploit the potential of e-business. E-business is remarkably inexpensive and provides the platform for delivering innovative solutions to a wide customer audience. Whilst the company has a niche application based on Health and Safety compliance, this innovation has wider applications for products and services supplied by any supplier to any customer (i.e. not niche).

6. Discussion and conclusions

e-business is much more than the purchase and implementation of computer applications. The company wide impact of e-business must be managed as an integrated change process (people, processes, information management and technology) and it is considered essential that this change process is aligned with or even drives the strategic direction of the business. By far the best way for SMEs to view e-business is as an extension and enabler of their business strategy.

Given that the SME sector is considered to be the powerhouse of tomorrow's economies, it is alarming how slow and random is the uptake of e-business activity in the UK. Much government effort is being applied to correct this, but it is suggested that much of this is unfocussed and overlooks the particular characteristics and difficulties of the SME sector. If the pathway to successful e-business uptake could be made prescriptive, a huge benefit for SMEs would be created. However, this is unlikely to ever happen given the complexities involved.

Even so, a thorough study of SMEs, the factors affecting successful uptake or otherwise of e-business, and the generic drivers behind the degree of success ought to yield valuable insights. The research that continues the work described in this paper has been launched with the clear aim of establishing and distilling the key success factors, leading to the prospect of more structured SME support activity where appropriate.

Whilst e-business opportunities and solutions are evolving, this should not be used as an excuse for

doing nothing, as the potential threats, in terms of survival and competition, are greater than the potential risks of changing solutions. It also means a flexible, adaptive, pragmatic and stepping forward approach is the best way to proceed.

Our work has shown that not only can SMEs use integrated e-business systems effectively; a relatively small SME can become a supply chain leader to large corporations by a thoughtful business strategy and basic ICT capability.

The benefits of and barriers to e-business implementation and extension in SMEs are clear. Simple and clear models of implementation and stage progression exist. However, from our work the key issues holding most SMEs back are:

- Lack of understanding of e-business as a business growth tool
- Lack of internal ICT capability leading to:
- Inability to specify in detail their e-business requirements, leading to:
- Fear of being "ripped off" by ICT consultants

Cleary the general ICT business support environment needs to be improved to increase e-business uptake rates by SMEs.

7 Future Research

Topics for our future research on e-business in SMEs include:

- Best practice of e-Commerce/Business in SMEs
- e- Commerce/Business implementation models and frameworks
- e-Commerce/Business assessment tools, data capture system
- e-business supportive tools.
- Business support for e-business uptake

The research will be based on literature studies, case studies and practical work within SMEs. It will be extended by full-scale surveys, structured interviews and both broad and detailed case studies. In addition, we have access to a large, comprehensive database survey of some 9,000 SME ICT users.

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