INVESTMENT APPRAISAL AND BUSINESS BENEFITS FOR E-ENTERPRISES

Jawed Siddiqi
Sheffield Hallam University
School of computing and Management Science

Babak Akhgar
Sheffield Hallam University
School of computing and Management Science

Guy Aked
Sheffield Hallam University
School of computing and Management Science

ABSTRACT
Rapid changes have occurred in the world economy during recent years, and organisations are concentrating on the move towards e-Business and e-Commerce. The paper follows a logical approach firstly identifying the business benefits of e-Enterprises such as increased market share, improved customer services, and improved supply chain management. Critical success factors that an organisation needs to focus on in order to integrate an e-Business infrastructure successfully into existing system are discussed. A method for appraisal of investment is then proposed that is appropriate for organisations evolving into e-Enterprises. The appraisal is in the form of a strategy that can be implemented in order to achieve the critical success factors. The suitability of traditional evaluation measures such as return on investment (ROI), net present value (NPV) and internal rate of return (IRR) are questioned and future issues concerning e-Enterprises are raised.

KEYWORDS
Investment appraisal; e-Enterprise; e-Business

1. INTRODUCTION
The global economy has changed considerably in recent years and organisations are feeling significant pressure from a triangle of forces. Rapid developments in global competition affect performance figures whilst increasing customer demands have raised productivity and quality issues. New digital information and communication technologies are also driving and facilitating much of the adaptation of businesses, especially in the USA and Europe [9]. Organisations are shifting towards e-Commerce and e-Business in order to stay competitive in the new environment. However, many are jumping in without consideration for the costs and benefits and without realising the impact this has on the strategic business development process [4].

Organisations need an approach that will enable them to capitalise on the new environment [14]. Firstly, the organisation must recognise why they want to become an eEnterprise and what the benefits to the business will be. Secondly, the critical success factors for eEnterprises must be identified to allow the formulation of a strategy that will assist in the transition. The strategy will then help in the investment appraisal process, this will be critical to the approval of the transition because it forms the bulk of the business planning procedure [10]. However, investment appraisal will only be suitable once conventional methods are revised, taking into account new business practices and infrastructures.
The successful transition to an e-Enterprise will be dependent on the available resources within the organisation [10]. Resources include the skills of staff with respect to technical knowledge of e-Commerce and e-Business, the dynamics of project management teams and existing business strategies. The existing or ‘legacy’ infrastructure will also require updating, whether this may be outsourced or designed in-house will influence the return on investments made with e-Enterprises [1]. The outsourcing or buying-in of software from external vendors is an important issue and could render the framework formulated in this paper redundant as software often comes with its own approach to business applications and strategy.

2. E-ENTERPRISE

Distinguishing between e-Business and e-Commerce is important. Although the two are linked they may be implemented in different ways and use different software applications that affect the strategy used to perform investment appraisal. In order to clarify the later the following is a brief description of e-Commerce and e-Business in context of Investment appraisal;

Traditionally, e-Commerce involves the sale of products and services to customers over the Internet and only the external interactions that result in a payment of some kind are dealt with. This definition may give a simplistic view of e-Commerce whereas in fact it can have a dramatic impact on all facets of a business. Every aspect from customer service to cash flow to supply chain management can be effected by e-Commerce solutions. Sterling Commerce [13] identifies 19 ways e-Commerce makes businesses more competitive. The short list below identifies six of the main advantages:

- Allows organisation to reach new markets
- Improve customer service
- Reduces internal costs (e.g. selling costs and order processing costs)
- Improve the supply chain management
- Maximise human resources
- Keep pace with the competition

Further savings and returns an organisation might expect from adding eCommerce to its operations include benefits from changes to:

- Inventory Replenishment (e.g. Reduction in purchasing process costs)
- Intercompany Processing (e.g. Reduced paper costs)
- Online Ordering (e.g. Improved relationships with the distributor and reduced order costs)
- Billing, account history, analytic tools etc. (e.g. Helping distributors manage end customers)

E-Business involves the use of digital technologies to transform both the internal processes as well as an organisation’s interactions with external parties [6]. Resources of traditional information systems are combined with the use of the Web to link critical business systems directly to all key players (customers, employees, partners and suppliers). An e-Business will sell products online (e-Commerce), but it will also link those sales to its back-end systems for order processing and delivery fulfillment [5]. The link involves the ‘back-office’ (traditional data/transaction processing jobs), ‘front-office’, and a variety of network management jobs.

Three areas can be defined in e-Business (although there is little technical difference between Intranet, Extranet, Internet):

- Within the organisation using an Intranet. People within the organisation have access to organisation-specific web sites.
- Business to Business (B2B) using an Extranet. The Intranets from a number of businesses are connected together by the Internet. The Internet has offered new networks of communication between businesses previously unavailable, it is also easier to maintain and cheaper to install. B2B is the largest area of expansion for the future and therefore has the greatest need for investment appraisal strategy to be updated [5].
- Business to Customer (B2C) using the Internet. Traditionally known as e-Commerce.
Damanpour et al [4] identify six general benefits for an organisation moving to e-Business:

1. Better Management Information – management can deal better and faster with sales data reporting and analysis.
2. Better Integration of Supplier and Vendors – gives better understanding of business’ needs and encourages a higher level of product and service delivery.
3. Better Channel Partnership – companies can provide faster information about product availability, changes in the product, pricing and the company’s promotional policy.
4. Lower Transaction Costs – e.g. Internet-based transactions reduce cost.
5. Better Market Understanding – E-commerce transactions can automatically extract information about customers and their buying behaviour.

A number of the above benefits for e-Business are similar to those advantages for e-Commerce. A selection of these benefits can be easily incorporated into a method to evaluate an e-Enterprise implementation because the Internet provides a valuable source of business information [15]. However, the above benefits also illustrate some of the intangible aspects of e-Enterprise that may not be evaluated by traditional investment appraisal techniques, especially those concerned with financial calculation.

3. TOWARDS A STRATEGY TO ENSURE SUCCESS

Organisations must consider a number of factors that are critical to the success of integrating e-Business applications into existing systems. The transition from traditional to e-Enterprise involves the integration of an e-Business infrastructure. Although, the infrastructure will be customised by the organisation based on the existing business strategy and future plans it is likely to need a number of characteristics to ensure success [9]:

- it must provide disciplined systems management
- it must be flexible enough to absorb the new technologies
- it needs to be able to provide the optimised performance to handle the demands of different e-business workloads

A number of requirements for the servers also form the foundation of this infrastructure. For instance, these might include new ways to manage risks and costs and extreme performance matched with scalability, reliability and security. The e-Business infrastructure should be an expansion of the existing structure allowing a ‘seamless’ connection with backend applications and it should also work with the existing technology because the users do not want to have to manage two distinct environments [13].

Interlink [10] outline a number of key success factors for making the transition to e-Enterprise. Firstly, the e-Business plan must have come from the highest level of the organisation in order for it to integrate smoothly with the existing strategy. An assessment of the impact of this plan on the organisations market must then be carried out. Secondly, the available resources must be examined to recognise any skills shortages or the need for outsourcing (software vendors, consultancy etc.). The introduction of experts in e-Business may be disruptive initially but they will provide the necessary guidance in prioritising investments which is important if costs are to be saved in the long term. Next, an assessment of the in-house capabilities will address any weaknesses with existing strategies, new technology software development, website maintenance and project management. Interlink also state that organisations going through the transition must be prepared to respond to change from internal and external forces.

Concentrating more on the specifics of the transition, for instance the transition from traditional business channels into website channels [4], may become more relevant in detailed investment appraisals. The transition must be fast paced whilst still allowing for flexibility in the design of the infrastructure. Most importantly, collaboration and partnerships with the trading community needs to be a success in order to identify potential business customers and competitors.

Having arrived at what we understand success to be we next aim at designing an approach to ensure the ‘checklist for success is fulfilled and looks at methods of evaluation. The evaluation may involve assessing the viability of an eEnterprise project or appraising an implementation of eEnterprise that has already
occurred. It must also be remembered that the success of any e-Enterprise will ultimately be a result of whether the organisation (especially the people at the higher levels of the organisation) is able to change its business attitudes and procedures to accommodate for the integration [12].

Let us briefly consider lists the importance of ‘e-Intelligence’ as a tool for exploiting the power of e-Business. Many organisations deploying e-Business systems do not have the same business intelligence capabilities available to them in e-Business systems as they do in the traditional corporate operating environment [15]. The lack of capabilities in the new environment means many business benefits are lost. However business intelligence systems are aimed at capturing and analysing the information flowing through e-Business systems. The use of enterprise information portals enable the users in the organisations to access this flow of information and eventually gain a better understanding of the complete information supply chain within the organisation. Web-based information portals will make this even easier in the future.

Dividing e-Enterprises up into more manageable sections for analysis will allow a better appraisal to take place. For instance, The Gartner Advisory Group [4] believe there are four faces of e-Business associated with an organisation’s business opportunity and risk. Firstly, the business/financial models perspective could be used to evaluate whether the transition to an e-Enterprise would lead to reduced running costs and a more efficient business operation. Secondly, the relationships perspective could be used as a basis for assessing whether new relationships and collaborations have been forged with potential business and customer clients. The third face concentrates on the e-Commerce aspect of e-Business and could be used to assess whether a venture has fulfilled a number of the business benefits discussed in Section 2 (e.g. reaching new global markets and improving customer services). The final face looks at the responsiveness perspective, has or will an e-Enterprise solution lead to improved efficiency and timing of business transactions, this should eventually lead to higher customer satisfaction.

A paper by Cothrel [3] looks at measuring the value of online communities. The procedures and criteria used in Cothrel’s paper need to be altered slightly to deal with appraising e-Enterprises, but initially they may be useful for examining the human aspect of eEnterprises and the interactions with customers. Three dimensions of community measurement are identified. Economic metrics measure ROI, activity measures describe the health of the community, and topic measures assess insights that the community offers into business’s products or processes. The online communities paper [3] is puts a lot of emphasis on community ROI which may not be as useful to e-Enterprise appraisal because we are trying to move away from purely financial considerations. However, the concepts of incremental value, conversion rate and community would eventually allow an organisation to assess the value of individual customers with respect to initial investments and see whether they were worthwhile.

4. DISCUSSION

The purpose of this paper is to describe some of the reasons for the changes to the global economy in recent years, and provide a better understanding of why some conventional business practices and methods need considerable alteration to adapt to the new technologies that are shaping industry today. The benefits for a company thinking of evolving into an e-Enterprise are discussed and the factors relevant to an effective investment appraisal strategy are considered.

The critical success factors discussed in Section 3 are only some of the many factors that are crucial to the successful integration of an e-Enterprise solution. The need for an appropriate infrastructure is identified and also the relevant changes both internally and externally to the organisation are examined. Internal reshapes need to coincide with the import of resources from external sources, for instance if the relevant technology is not available in-house.

The paper attempts to illustrate that traditional ROI are other similar financial measures are not truly representative of the business benefits. Investment appraisal should involve measuring the degree to which relationships with the customer base (public or other businesses) are improved. An appraisal technique should also take into account the benefits of changes to the whole business process and infrastructure that e-Enterprises will introduce. When determining how successful a transition is the whole setup, both back-office and front-office, should be reviewed. The improvement in communications with business partners and suppliers may also be significant.
Some difficulty was found in researching the topic due to the rapid changes in the e-Business and e-Commerce environments. The lack of empirical data available also meant that the key fundamentals of e-Business and e-Commerce were discussed more. Not surprisingly much of the literature is focused on the e-Commerce aspect because of the rapid growth in this area in recent years and the hype around it. There will be increasing amounts of literature explaining e-Business aspects in the future due to its complexity and many business benefits associated with back-office integration and alike.

Although the paper does put forward many business benefits for e-Commerce it is crucial to point out that the risks are high when investing in a new venture of this kind. There are many obstacles and expenses that must be addressed which is why a number of software vendors are offering a series of tools and software packages to help with the transition. However, when choosing a package one needs to consider costs, capabilities, strengths, restrictions and the range of deployment of the software.

The paper seems to concentrate on profit seeking organisations however the success factors and strategy for transition to e-Enterprise mentioned will be sought by any forward thinking organisation whether they are seeking profit or not. Anyone wishing to expand or develop their operations on the Internet will want a strategy that ensures they will get the most benefits with an efficient use of resources, this is evident with the online communities example mentioned.

REFERENCES