E-commerce strategy formulation

Les Labuschagne and Jan Eloff

RAU Standard Bank Academy of Information Technology, Rand Afrikaans University, South Africa, LL@na.rau.ac.za

Abstract: Many large organisations find it difficult to develop an e-commerce strategy. Senior management should first develop a comprehensive understanding of what it means to become e-commerce enabled before deciding whether or not to pursue that route. With e-commerce comes major changes that must be carefully planned and coordinated to avoid chaos and confusion. The aim of this paper is to provide an approach to develop an e-commerce strategy for large organisations. An e-commerce strategy, in its most simplistic form, consists of three steps, namely: determining where the organisation is; where it wants to go; and the best way of moving from the one to the other.

1. INTRODUCTION

The growth in electronic commerce (e-commerce) as a discipline has been unprecedented in the field of information technology. Both industry and academia have realised its importance, resulting in much research being done into its various facets. There are a number of success stories but, unfortunately, even more failures. The popular media has generated a lot of “hype” around e-commerce, especially business-to-consumer (B2C) e-commerce, and many “horror-stories” abound. Numerous surveys have been conducted which highlight the drawbacks or problems with e-commerce, and most of these point to security as an overriding problem [ERNS96][ERNS99]. In reality, however, many different technologies exist that address most security concerns [GREE00][LABa00]. The main problem with many failed e-commerce initiatives is the seeming lack of senior management support as well as a general lack of understanding – amongst senior managers – of the fundamental issues that constitute a successful e-commerce environment [ERNS96][LABb00]. This paper suggests a practical, top-down approach for transforming a traditional organisation into one that is e-commerce enabled. The

suggested approach is based on well-known and proven management techniques to facilitate a wider acceptance by senior management.

2. THE BUSINESS ENVIRONMENT

For the small, start-up organisation, engaging in e-commerce is relatively easy and inexpensive, as is evident from the number of “dot.coms” that have sprung up over the past two years. Large corporates and multi-nationals are, however, experiencing difficulty realising the full potential of e-commerce. For such an organisation, it is not just a matter of selling products over the Internet, but rather changing its business philosophy as well as the industry in which it operates.

Organisations are attempting to adapt their imperfect business processes and systems to become e-commerce enabled. Many failed e-commerce initiatives can be attributed to the GIGO (garbage-in, garbage-out) principle. A struggling organisation with poor processes and systems will not become successful just because it has become e-commerce enabled. In such examples, e-commerce did not fail, but it was a case of the organisation being doomed from the start.

Before embarking on any e-commerce initiatives, it is essential that there is a proper understanding of what is required from the organisation [LABb00]. There are seven factors that govern an e-commerce enabled organisation [ROSS00][ROSS01]:

1. **Convergence** – In e-commerce, the convergence of business and technology drives the organisation. Technology has become a business enabler and creates new business opportunities. The traditional roles of CEO and CIO are becoming integrated and, in future, will become the responsibility of just one person.
2. **Streamlining** – All business processes, both internal and external, must constantly be analysed to seek ways to make improvements. Streamlining also involves the creation of new business process which, in turn, might lead to a need for new or additional infrastructure. Organisations can no longer function in isolation of customers, partners and suppliers.
3. **Technology awareness** – The e-commerce enabled organisation must keep abreast of technological developments as such developments create new opportunities. CEOs of the future will need a solid understanding of both the business and technological aspects affecting their organisations and industry.
4. **Flat-and-flexible organisational structure** – The e-commerce industry is a fast-paced one with little time for bureaucracy. The organisational structure needs to be adapted to become mobile and flexible in response to change. Employees must be empowered to make decisions and utilise opportunities. This means that the functional organisational structure of the past is inadequate and that new structures, such as project and matrix organisation structures, are required [SCHW00].

5. Information-centricity – E-commerce differentiates itself from traditional commerce in the sense that information, rather than a physical product, is the primary asset. Therefore, a more aggressive approach to information gathering, storing and retrieval needs to be followed. Many organisations have mountains of data, some information, but very little knowledge.
6. Customer-centricity – The focus of e-commerce is on the individual customer, rather than on the anonymous masses. This is sometimes referred to as mass-customisation where products and services intended for the masses are packaged for the individual. Customers want to be treated as individuals which means that organisations must get to know their customers as individuals.
7. Web assurance – E-commerce removes the need for physical presence but at the same time creates a lack of trust due to its face-less and place-less nature. Traditional organisations use a physical presence to establish initial trust with customers. With e-commerce, this is not always possible and, therefore, requires a different approach. One method of achieving initial trust is to have the organisation verified by a trusted party [ARTH01].

Once an organisation understands and accepts the above factors, it can start to develop an e-commerce strategy to change from its existing form into an e-commerce enabled entity. The main success factor for transforming an organisation is an excellent strategy [KALA97]. The development and implementation of a strategy is referred to as the strategic planning cycle and consists of four phases [TURB00]. These phases are illustrated graphically in figure 1 below:

Figure 1. Strategic planning cycle

The following paragraph addresses the first two steps, namely internal and external environment analysis and strategy formulation.

3. E-COMMERCE STRATEGY

Strategy is defined as “the long-range plans to effectively manage environmental opportunities and threats in light of corporate strengths and weaknesses” [TURB00]. Intuitively, strategy can also be defined as the process of determining:

- where the organisation is;
- where it wants to be; and
- the way to get there.

Many proven techniques and tools exist that can be used for this purpose. By using familiar and proven techniques, top management is put at ease, as there is already enough unfamiliar territory within e-commerce. A SWOT (strengths-weaknesses-opportunities-threats) analysis can be used to determine where the organisation is. The Robson’s five forces model [YEAT96] (an adaptation of Porter’s five forces model), can be used to determine where the organisations wants to be. With the information gathered in the previous two steps, a plan can be developed to move from the one to the other.

3.1 Where the organisation is

The first step, to determine where the organisation is, can be achieved by using a SWOT analysis. The four components of SWOT need to be analysed to determine both internal and external organisational factors.

When looking at the internal factors, one approach is to view the organisation as consisting of three layers, with each layer broken down into more detail. The three layers are [ROSS01]:

1. Business direction – represents the top layer where strategic decisions are made by top-management.
2. Business architecture – represents the business units responsible for the core business processes that are managed by functional management.
3. Business infrastructure – represents the supporting services needed for the core business processes that are managed by operational managers.

These three layers are depicted graphically in figure 2 below:

Figure 2 – Three-layer organisational view

Following is a discussion regarding each layer.

3.1.1 Business direction layer

On the business direction layer, the existing strategy must be analysed to see if it can be adapted to include e-commerce. If not, a strategic decision needs to be made as to the future direction of the organisation. Top-management must be in agreement regarding the change in strategy, as this decision needs to be filtered down to everyone in the organisation. If some top managers do not support the initiative, there is a very good chance that it will fail [SCHW00]. E-commerce strategies will, in most cases, require innovative business models and/or business process re-engineering. It is seldom that a physical organisation will be converted into one that is an e-commerce enabled without using either of these.

Once the strategic direction has been decided, the e-commerce initiative must be funded. This is where corporate finance plays a very important role. Few organisations will have the financial resources available to fund a complete transformation. In most cases, a phased approach to implementing e-commerce is recommended. Each phase can then be financed separately. It is also possible to start planning for the allocation of funds over a certain time period. Corporate finance is also responsible for determining the financial viability of investing in an e-commerce initiative.

3.1.2 Business architecture layer

Once the strategic direction has been set and financial resources have been allocated, the business architecture can be analysed to determine the core business functions and the relationship between the systems in these functions. As a minimum, most organisations should have some form of customer relationship management (CRM) and supply chain management (SCM), even if it is in its most basic form. Depending on the type of organisation, other functions need to be analysed as well.

3.1.3 Business infrastructure layer

Lastly, the business infrastructure needs to be analysed to see what is already available. As a minimum, most organisations will have some form of information technology infrastructure, human resources management and facilities management. In many cases the organisation might already have some e-commerce components in place, for example a Web presence, an intranet and e-mail facilities. These can be used as the foundation for the e-commerce initiative.

At this point an organisation should have a good idea of its own strengths and weaknesses. An analysis of the market and the industry the organisation operates within should give insight into the opportunities and threats. This is sometimes referred to as Industry and Competitive Analysis. The next step is to determine where the organisation wants to be.

3.2 Where the organisation wants to be

To determine where it is that the organisation would like to be, a number of questions need to be asked. Wendy Robson took Porter's five forces model and adapted it to what is now known as Robson's five forces model for information systems opportunities [YEAT96]. The application of Robson's model to e-commerce is shown in figure 3 below.

Figure 3. Robson's five forces model applied to e-commerce

After referring to figure 3 above, the first question to ask is whether e-commerce can change the basis of competition. There is no point embarking on e-commerce if no benefit is to be derived from it. The answer to this question can be [TURB00]:

- the organisation achieves competitive advantage (offensive approach)
- the organisation is able to level the playing fields and compete with much bigger competitors (offensive approach)
- the organisation needs to go this route for business survival reasons (defensive approach)

The ideal situation for any organisation is to create a new market by providing a new product or service. Whoever is first in this new market is usually perceived as the market leader. The market leader is now in a position to make up the rules for this new marketplace by which any future competitors need to abide. A typical example is Amazon.com — the first Internet-based bookseller. Any other organisation wanting to enter this market will be measured against Amazon.com.

The next question to answer is whether e-commerce can create barriers to entry. In a free market, any venture that is profitable is bound to attract new competitors. The ideal is to provide a product or service that discourages anyone else from entering the market and thereby maintaining a monopoly. Despite the fact that e-commerce can level the playing fields, many small organisations are unable to compete with the resources available in bigger corporates to develop large and sophisticated back-end systems. This is especially the case when it comes to using technologies such as data warehousing, data mining and knowledge management. The investment made thus far by Amazon.com in information technology runs into millions of dollars. Any competitor planning to enter this market will need to make a substantial investment to compete with such a strong and well-established entity. Another problem is that Amazon.com has been able to collect valuable information on its customers for a number of years. A new entrant will not have this information, nor will it be able to purchase it.

The third question is whether e-commerce can increase the cost to the buyer of switching suppliers. Ideally, an organisation wants to build up a loyal customer base as repeat business costs much less than new business. Using incentives and getting to know the customer can create a loyal customer base. Customers quickly get into a convenience-habit, which needs to be maintained by the organisation. An example is where Amazon.com, despite its low-price strategy, offers extra discounts to loyal customers. Part of the incentive scheme involves a virtual book club that customers can belong to, and, after purchasing a number of products, they receive free gifts or additional discounts. This is sometimes referred to as a virtual community. Customers are also given specific information on books and other products based on their preferences and past purchases. Customers, therefore, build up a relationship with the organisation. The effort involved for a customer to move from a familiar environment to an unfamiliar one where a relationship must still be established — and where there are no immediate benefits — will discourage most customers from making such a move. In e-commerce, trust also plays a very important role, as trust is developed over time, and few customers are prepared to move from a trusted environment to one where trust must still be established.

The fourth question is whether e-commerce can generate new products or services to forestall external threats of substitutions. Most products and services evolve over time and the organisation itself needs to be able to evolve accordingly. New products and services are, in many cases, the result of developments in technology. Organisations must either prevent the acceptance by customers of these new products and services, or be geared to accommodate any such substitutions. Going back to the example of online bookstores, one new development in the book market is electronic books or e-books. Books are published on disk and a special viewing device is used to read the book. Should physical books be substituted with electronic books in the future, Amazon.com will be geared for this. Amazon.com has already started distribution of electronic books, thereby preparing the business to accommodate this possible substitution of products.

The fifth question is whether e-commerce can help the customer to dominate the supplier. In most cases the individual customer has very little bargaining power. By consolidating the bargaining power of individuals, organisations can act as intermediaries and take full advantage of bulk purchases. Amazon.com is able to sell books at very competitive prices, lower than traditional bookstores, due to bulk purchases from book wholesalers. These savings can then be passed on to the customer. Amazon.com also passes demand-information through to the book wholesalers to ensure a supply that matches demand.

At this point the organisation knows where it is and where it wants to go. The next step is developing a plan to get from one to the other.

3.3 The way to get there

By mapping the information obtained from step two, where the organisation wants to be, onto step one, where the organisation is, different areas will be identified that must be adapted or created to enable e-commerce. The information obtained from questions one and two in step two is used to change the existing strategic direction of the organisation, as illustrated in figure 2. The information obtained from question three is used in CRM in determining what has to be done to become e-commerce enabled. The information obtained from question four is used in SCM to determine how substitute products or services can be accommodated. The information obtained from question five is used by both CRM and SCM to determine better ways of serving the customer. The relationship between where the organisation wants to be, to where it is, is shown in figure 4 below.

Figure 4 – Relating where the organisation wants to be to where it is

During this process an organisation may realise that there are some new areas that have to be established within the organisation. The new e-commerce enabled organisation, based on its e-commerce strategy, might therefore resemble figure 5 below [ROSS01]:

Figure 5 – Three-layer organisation view incorporating e-commerce

Following is a discussion on how e-commerce would change the traditional organisation:

3.3.1 E-business direction

Top-management is responsible for setting and executing the new e-commerce strategy. Part of e-commerce strategy formulation must include investigating issues such as taxation, foreign exchange, legislation, multilateral contracts and role and policy of government [SCHN00].

3.3.2 E-business architecture

On the e-business architecture layer, e-commerce might be seen as a core function of the organisation and should therefore be a business unit on its own. For the purpose of this paper, e-commerce is defined as the exchange of goods and/or services for money using Internet technology as a supporting infrastructure. This unit must address several issues that include:

- **Electronic contracting.** Contracts are used in the physical world to bind two parties to an agreement and to protect them from one another. The use of contracts is considered good business practice by most large organisations. In the e-commerce environment, it is sometimes impossible for two parties to have the physical contact necessary for signing contracts before engaging in business.

This does not mean that contracts must now be abolished. Digital signatures can be used to sign electronic contracts [TURB00].

Contracts are still required for e-commerce, for the same purpose as for the physical world and is a prerequisite for procurement, negotiations, bidding and auctioning [SCHN00].

- **Electronic payment.** In cases where transactions are performed and money must be transferred, a secure electronic payment system must be implemented. For regular, large-sum transactions, using e-cash, credit cards or e-cheques becomes inadequate. The wide variety of electronic payment systems available presents an organisation with a choice. Electronic payment systems have to be integrated into the financial institution's systems. It goes without saying that security is very important if fraudulent transactions are to be prevented [GREE00].
- **Web assurance.** An organisation wants its customers and business partners to trust its processes and systems. One way to establish trust is to have processes and systems audited by, for example, an audit firm that will provide certification that the organisation complies with baseline controls [ARTH01]. Web assurance generally means looking at security, privacy, and consumer protection. Web assurance is similar to quality standards in concept, where in the future only organisations that have been certified will engage in e-commerce with one another. Organisations that provide such services include TRUSTe [TRUS01], Better Business Bureau (BBB) and Online Privacy Alliance [TURB00].

The CRM unit is responsible for both pre-sales and post-sales activities such as ordering, settlement, delivery, payment and customer care [ROSS01]. This unit, therefore, must work closely with the e-commerce, information technology and information security management units when it comes to electronic payment systems.

The CRM unit is responsible for analysing and managing the supply chains by using tools such as work flow management. This unit must work closely with the CRM unit to be able to exploit JIT (just-in-time) delivery of goods and services [TURB00].

The abovementioned issues are just some of the important ones and are by no means an exhaustive list.

3.3.3 E-business infrastructure

Based on the additional needs of the e-business architecture layer, the Information technology unit must expand its capabilities and develop additional expertise in areas such as smart cards, biometrics, digital certificates and encryption. More e-commerce enabling knowledge is required for, as an example, new information and communication platforms and mobile agents [SCHN00][TURB00].

The Human resources unit might not experience any drastic changes but could give valuable input to the CRM unit.

Facilities management traditionally looked at the management of, for example, physical security, air conditioning and telephony. Many of these services now makes use of computer technology in the related products. There is a definite overlap between the facilities management, information security management and the information technology units.

Based on the needs of the e-commerce unit, the establishment of a separate information security management unit might be required. This unit must work closely with the e-commerce and information technology units to implement the security infrastructure needed for secure transactions [GREE00]. The information security management unit is responsible for the non-technical aspects of security, while the information technology unit is responsible for the technical aspects. This unit must address several issues that include:

- **Certification and accreditation.** Security is a key issue for most organisations in conducting transactions over the Internet. An organisation might want to be certified as complying with some Information Security Standard, for example the BS7799, to provide potential customers and business partners with the peace of mind that it is proactively addressing security. Certification is only one component of web assurance, as discussed earlier.
- **Public key infrastructure.** Should an organisation decide to use public key encryption as its backbone for secure transactions, a public key infrastructure must be implemented. Once implemented, it needs to be managed and maintained, which requires dedicated resources and commitment. The use of a public key infrastructure does not automatically guarantee trust. A concerted effort is required to get the buy-in from all interested parties.

To enable CRM and SCM to effectively perform their functions, a knowledge management and an enterprise resource management division might have to be established. The enterprise resources management division is responsible for ensuring that all systems within the organisation are integrated to eliminate inconsistent information and data redundancy brought on by having large amounts of data. Data warehouses can be used for this purpose, as well as to improve on efficiency. The knowledge management unit uses techniques such as data mining to find patterns and trends in the data warehouses, This knowledge is, in turn, used by the organisation to improve its CRM and SCM functions [TURB00].

The above mentioned issues are just some of the important ones and are by no means an exhaustive list.

The next step, as shown in figure 1, is to implement the strategy and to regularly assess its performance [SCHN00]. Based on the results of the assessment the strategy might have to be modified or changed. It is very important that the strategy sets out to achieve a quantifiable goal, as many e-commerce failures are a result of unrealistic expectations. Strategy formulation is part science, part art.

4. CONCLUSION

For many organisations, e-commerce seems like an unrealistic dream. The reason for this is that large corporates and multi-nationals are like big ships that turn slowly. It is impossible to expect these organisations to change overnight to become e-commerce enabled. As with any other major organisational change, it is important to have strategy that will give direction to all involved. Many e-commerce initiatives have failed in the past because organisations focus on components of e-commerce rather than taking a holistic approach.

The top-down approach suggested in this article will assist senior executives by providing a starting point for taking an organisation down the e-commerce road — without getting lost in the detail.

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