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MANAGING BUSINESS RISK IN ELECTRONIC COMMERCE

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Abstract

After a brief introduction to risk, risk analysis and risk management, this paper examines four categories of business risk in e-commerce—competitive risk, transition risk, customer-induced risk and business partner risk. These risks are defined and illustrated with examples. In the concluding section, solutions for managing these risks are proposed. Not surprisingly, many of the solutions for managing business risk in e-commerce—such as effective change management, generating consumer trust, asking the right questions—are similar to those in non-electronic commerce.

Keywords: Electronic commerce, e-business, e-commerce strategy, risk management, business risk, risk

Introduction to Risk

Risk is all around us. In our personal and professional lives we are aware of risk and take measures to limit our exposure to risk—home and car insurance, avoidance of hazardous situations and contingency clauses in contracts are examples.

Risk is inherent in electronic commerce too. Information security—protecting the information asset from destruction or theft—is a widely recognised aspect of e-commerce risk and most companies have information security safeguards in place. What is not so easily recognised, evaluated or managed is business risk—elements of developing or operating an electronic commerce strategy that could negatively impact the well being of the organisation itself.

The purpose of this paper is to examine the risks posed by an electronic commerce strategy and propose steps an organisation can take to reduce that risk. While information security is part of e-commerce risk, the focus of the paper is on business risk.

A Definition of Risk

Before beginning, it is best to define risk. The Oxford English Dictionary definition of risk is "a chance or possibility of danger, loss, injury or other adverse consequences". Lynn Markus (2000) defined IT-related risk as "the likelihood that an organisation will experience a significant negative effect in the course of acquiring, deploying and using information technology either internally or externally." If we adapt this definition to e-commerce, then electronic commerce risk is the likelihood that a negative outcome will occur in the course of developing and operating an electronic commerce strategy.

Electronic commerce strategy is used here in a broad sense. It could be the launch of a basic Web page or the creation of an e-business supply chain that depends on interorganisational information systems to source, manufacture, distribute and sell product. E-commerce also includes the entire range of electronic business activities, what some people call e-business.

Risk Analysis

A key aspect of managing risk is risk analysis—identifying and evaluating the sources of risk. Microsoft has an exemplary program of risk analysis that is based on a "universe of risk", twelve primary sources of risk (business partners, competitive, customer, distribution, financial, operations, people, political, regulatory and legislative, reputational, strategic and technological). Each new Microsoft product or business strategy is assessed on these risk factors. For example, in 1995 Microsoft was ready to license an innovative keyboard for production, charging a royalty for each unit. Just before issuing the contract a risk analysis revealed a potential liability for repetitive stress injury, which had not been considered by the manufacturing or marketing departments. The royalty was adjusted to insure against the possibility that Microsoft would have to defend the keyboard design in legal proceedings (Teach 1997).
Once sources of risk are identified, the source is evaluated according to the value–potential severity of loss, destruction, compromise or any other negative consequence–and vulnerability–the potential of a loss-producing event–of the resource at risk (Wideman and Dawson 1998).

Management

Once sources and degrees of risk are known, it is possible to propose and implement strategies to reduce risk.

If risk analysis shows a high risk (i.e., valuable and vulnerable) then prevention activities are recommended. For example, a hacker attack on a company's Web site is easy to attempt and can have a considerable negative impact on the company's reputation and ability to do business. So risk management strategies would put prevention strategies in place. On the other hand, if value is high but vulnerability is low, then insures and backup activities are recommended. For example, the loss of a key supplier would have a high impact but low probability of occurrence so backup procedures such as contingency contracts for secondary suppliers are required.

Risk management also includes balancing costs versus benefits for any reduction of risk. Simply put, the cost of risk management strategies to reduce the threat should not exceed the value of what is being protected. For example, information security managers must be able to justify the cost of security measures–both financial costs and user inconvenience–in light of the expected frequency of attacks and the anticipated loss resulting from a successful attack. So, an expensive firewall can be justified to protect a company's Web site. However, the company's office equipment database would not require any protection other than regular back-up procedures.

With this introduction to risk in mind, the paper now turns to its central theme–business risk in electronic commerce.

Business Risk in Electronic Commerce

Mention e-commerce risk and most IS professionals think of information security. This is the most obvious aspect of electronic commerce risk, but it is not the most dangerous risk.

The most dangerous risk to a company engaged in electronic commerce is business risk–the possibility that developing or operating an electronic commerce strategy could negatively impact the well-being of the organisation itself.

This section examines four categories of business risk in electronic commerce:

- **Competitive risk**: The possibility that a strategy intended to introduce competitive advantage could have negative, unanticipated consequences. Competitive risk also includes the competitive threat posed by new entrants.

- **Transition risk**: If an organisation decides to adopt electronic commerce as a new growth strategy, what are the consequences for current business processes? Long-term customers? Traditional distribution channels?

- **Customer-induced risk**: Doing business on-line is different. A company that uses traditional approaches to managing customer relationships may find an entry into the world of electronic commerce to be unsuccessful.

- **Business partner risk**: Virtual organisations, just-in-time delivery, business-to-business e-commerce and outsourcing are a few examples of how companies are using closer links with business partners to implement a business strategy. However, business partnerships can lead to interdependency, and that can threaten a business.

Other categories of risk exist as well (e.g., financial, technological, reputational) but competitive, transition, customer and business partner risks are the most significant that arise directly from developing and operating an electronic commerce strategy.

**Competitive Risk**

All organisations strive for an advantage over competitors in the marketplace. But is it possible for a strategic move into electronic commerce to have unanticipated negative consequences? Yes.

Risk can arise from a strategy that changes the basis of competition to a company's disadvantage (Vitale 1986). When a company embarks on an electronic commerce initiative, competitors will not only follow, they will attempt to "raise the bar" with a more advanced strategy.
A mini-case study illustrates this point: Tower Insurance (www.tower.co.nz) was the first New Zealand financial services company with a Web page. However, it was basically "brochureware" with little more than a description of insurance policies and financial services with contact details for agents. A few months later AMP (www.amp.co.nz) introduced their Web site, which included all the functionality of Tower's site, plus a series of financial calculators (e.g., mortgage, retirement, insurance) which encouraged more interactivity with visitors. AMP has gone on to be New Zealand's only insurance company selling car insurance on-line and Tower, the "first-to-the-Web" company, has yet to catch up.

An organisation that does not commit to continued investments in their e-commerce strategy would be better off not entering the race in the first place.

A second area of competitive risk is a strategy that increases customers' or suppliers' power to the detriment of the innovator (Vitale 1986). An e-business strategy can strengthen a company's relationships with its customers and suppliers, in some cases providing tools, training or expertise that enable the customer and suppliers to function on their own (e.g., a business-to-business application). However, if a competitor comes along with a better opportunity, customers will switch and the investments made by the original company will produce no long-term advantage.

A third area of competitive risk is a strategy that is badly timed (Vitale 1986). Determining the time to make a competitive move requires careful consideration of the market and the customer.

Home banking was available to bank customers in the mid-1980's, but the interfaces were unfamiliar and difficult to use, not many individuals owned computers with modems and customers didn't trust the electronic systems. Of course this changed as the popularity of the Internet grew, the Web browser became a standard interface and secure servers became readily available. However several American banks spent millions of dollars on home banking systems that never drew more than a few thousand users.

In developing e-commerce strategy much is made of the need to get there first, to be on the "leading edge" of the e-commerce revolution. However, it is possible that those on the "lagging edge" understand the e-commerce strategy better. They are prepared to use it when it becomes necessary, but are unwilling to initiate a potentially unfavourable change in the industry's competitive environment.

A fourth major area of competitive risk is the threat posed by a new entrant. From a competitive advantage perspective, new entrants have distinct advantages over existing businesses. Established businesses have entrenched corporate cultures, carry legacy systems, refuse to cannibalise existing product lines and they tend to miss or not take risks that innovate the marketplace. New entrants frequently see opportunities more easily and can execute e-commerce plans more quickly.

**Transition Risk**

Adopting an electronic commerce strategy is likely to require a reengineering of internal work processes, new work practices for staff and long term commitment and involvement of the executive team. While the marketplace demands rapid change, the pace of organisational change can be slow, politically risky and costly.

Transition risk is especially high when implementing e-business applications such as enterprise resource planning, customer relationship management or electronic procurement. Unless employees, suppliers and other stakeholders understand why these changes are being made, their impact may be muted or unsuccessful.

Part of transition risk is cannibalisation of existing product lines. A simple example is the bricks-and-mortar retail store that goes on the Web. If a significant number of new customers shop at the online store, then it can be a success. However, if the online shoppers mostly represent existing customers who are not coming into the shop, then what has been gained? For the most part, the existing revenue stream has been divided into two streams, but costs (i.e., the Web site) have increased. Banks face similar problems with Internet banking because, at the initial stages at least, it tends to attract existing phone banking customers, but not necessarily a large number of new customers.

Ideally, an electronic commerce strategy will "grow the pie" instead of just redistributing the firm's market share from one distribution channel to another.

**Customer-induced Risk**

An electronic commerce risk that is both transitional and related to meeting customer needs is how to manage multiple information distribution channels. The following represent risks in this area (Kanagalingam 2000):

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Lack of consistency in information being sent out via the different channels.  
Timing of information being sent out in order to ensure that all recipients are aware of new changes.  
Repository management: If multiple distribution channels are used, then all the digital transactions must be collated in a central location for indexing and categorisation.  
Updating local repositories if an organisation has multiple data warehouses.

Another more common risk is obtaining and keeping consumer trust. Trust is relatively easy to establish in face-to-face relationships. A customer buys a product at a retail store. He/she has the opportunity to feel and touch the product, to ask a salesperson about it and to walk out the door with a reasonable assurance that if something goes wrong the store and the salesperson will be there tomorrow.

On-line shopping is different. The store is a virtual entity behind the Web browser. The relationship is often anonymous and based on the movement of bits, rather than a handshake or face-to-face contact. "Whether at a personal or corporate level, the need to understand and define 'trust' in this new context becomes the point from which all future EC transactions extend. Trust, not technology paces EC change." (Keen et al. 2000, emphasis added).

**Business Partner Risk**

In an e-business world, commercial firms are building interorganisational networks to speed up the business cycle, automate business processes, obtain new contracts, lower costs, improve cashflow and reduce data entry errors and delays. These are just a few reasons why businesses adopt electronic data interchange, implement just-in-time (JIT) delivery, outsource, link supply chains or contract with an application service provider.

However, forming these links also increases interdependence in an increasingly complex world of business. For example, as companies implement just-in-time processes along their supply chain they remove internal processes, steps and storage. Typically the cost of storage and support of inventory is transferred to downstream firms further down the supply chain. Frequently these are smaller firms that have a more difficult time carrying the cost of storage or out-of-stock positions. The result? At the same time organisations are becoming more dependent on downstream suppliers, costs are being loaded on these firms, increasing the likelihood of failure. While the JIT goal of cost reduction (really a transfer of costs) has been achieved, business partner risk has increased.

Similar risks emerge with the increased use of outsourcing. Dependence on outsourcers is not new, but when outsourcing was restricted to secondary activities—the cafeteria, the laundry, the information technology—the risk from outsourcer failure was low. Today primary activities—manufacturing, distribution, customer service—are being outsourced and any failure by an outsourcer to deliver puts major risk on the organisation.

**Managing Electronic Commerce Risk**

Given the existence of competitive, transition, customer-induced, and business partner risk in implementing an e-commerce strategy, what can be done to reduce this risk? In other words, how does one manage e-commerce risk?

**Competitive Risk**

Awareness of and understanding competitive risks is the first step to managing them. In addition to the fundamentals (e.g., Who are our competitors? What are our/their strengths and weaknesses?), risk managers should consider the following questions in assessing competitive risk in an electronic commerce strategy:

- What are our motivations for the e-commerce strategy?  
- How does this fit in with our long-term strategy?  
- What changes in our industry might be brought about by the introduction of this electronic commerce strategy?  
- Is first-mover advantage critical to obtaining the benefits the strategy promises?  
- How fast could we expect a countermove from our competitors (recognising of course that non-proprietary information technology can be acquired easily)?  
- If a competitor counters with a similar but improved strategy, are we ready to respond in turn? If so, how?  
- Is this strategy inevitable? What are the implications for our industry and our organisation if we do it first? If a competitor does it first?  
- Do the negative consequences identified above outweigh the positive benefits we expect from the strategy?
The most straightforward strategy to counteract a new entrant is to think and act like a new entrant. Transformational thinking is required. Companies will need to act like new entrants, continuously creating fundamental change. Senior management must nurture a healthy discomfort with the status quo, develop the ability to detect trends earlier than the competition, make rapid decisions and be agile enough to create or adopt new business models.

One useful risk management strategy is to set up a separate subsidiary and start a new business under the brand name of old business. The so-called new entrant has few of the disadvantages of the "parent" and if the venture is a failure, the reputation of the parent company remains intact.

In New Zealand, ASB Bank, one of the most technologically progressive banks in the country, established BankDirect as New Zealand's first on-line bank. BankDirect operates totally off the Web and a call centre, no brick and mortar branches. ASB Bank continues to innovate the New Zealand banking market, but BankDirect operates more like a new entrant and offers several unique banking services in the New Zealand marketplace (e.g., a greater variety of credit card options than available at any other bank).

**Transition Risk**

Transition means change and one of the best approaches to manage transition risk is to remember the principles of change management.

Change management involves analysing the changes facing the organisation and developing plans to reduce the risks and maximise the benefits of change. For example, implementing an enterprise resource planning application may involve developing a change action plan, assignment of selected managers as change sponsors, developing employee change teams and encouraging open communications and feedback about organisational changes.

Principles of change management should be recognised and followed. For example (Stokes 1989):

- Everyone affected by a change perceives it differently, and will behave according to their perception.
- Organisations consist of technical, social and administration systems and change in one system affects the others.
- Managing change means managing differences.
- Negative attitudes about change often result in negative self-fulfilling prophecies; the reverse is also true.
- Corporate and departmental cultures are key variables when managing change.
- Ambiguity almost always accompanies change but may be put to good use.
- Strategies for introducing and managing change range from the nondirective (which requires high participation on the part of those affected) to the directive (which requires low participation on the part of those affected). Normally nondirective strategies are more effective.

**Customer-induced Risk**

The most effective way to reduce the threat of customer-induced risk is to increase trust. Most observers believe there is a direct, inverse relationship between customer-induced risk and trust. Effective ways to generate trust include (Huff et al. 2000):

- Make it easy for customers to make personal contact (e.g., use toll-free telephone numbers with minimal wait time).
- Effective use of e-mail and the Web to keep customers informed of their order's status.
- Use secure server technology to enhance the customer's sense of security and boost confidence.
- Belong to industry self-regulatory bodies and/or use reputable assurance services (e.g., WebTrust, eTrust).
- Provide a useful FAQ (frequently asked questions) page.
- Show physical presence. For example, Homegrocer features pictures and a short text description of each of their staff–real
  people = a real company.
- A prominent and unambiguous policy regarding information privacy.
- Use a clear, simple purchasing process that includes clear information on returned goods policies.
- Make sure there are no surprises, such as failing to mention anything about border duties or extra shipping charges.

**Business Partner Risk**

As noted in the previous section, one major risk for just-in-time activities is that costs are transferred down the supply chain to downstream suppliers who can rarely afford it. How can companies cope?

The new, enlightened approach to managing business partnerships is that buyers don't want to put suppliers out of business. For example, over a ten-year period Chrysler moved from a win-lose, play-them-against-each-other relationship with hundreds of
suppliers to a collaborative relationship with a small number of suppliers. Chrysler minimises business partner risk by long-term trading agreements that encourage improvements in supply chain processes. Both Chrysler and the downstream suppliers share the benefits of mutual involvement in design and development of the products Chrysler purchases.

To manage outsourcing risk, managers must consider the following questions in managing outsourcing risk:

- How many components are outsourced?
- Of the outsourced components, how many are core or critical?
- What is the capability/expertise of the outsourcing vendors?
- Are these vendors regulated or unregulated? ISO compliant or not?
- Is there oversight by senior management on critical and core functions?
- Is there a dedicated group to work with management on a contingency plan in case of vendor default?
- Is there due diligence review of the outsourcer?
- What are the contract terms, especially with an outsourcer outside the country of residence?

Conclusion

Risk is inherent in business activities, and especially so when organisations are moving into new territory, as an e-commerce strategy inevitably implies. Managing that risk is a process of analysing the risk factors, and then taking the steps to reduce the threat to the business from that risk.

The focus of this paper has been on business risk— the possibility that developing or operating an electronic commerce strategy could negatively impact the well being of the organisation. Questions asked in determining e-commerce business risk include:

- **Competitive risk:** Can a strategy intended to introduce competitive advantage have negative, unanticipated consequences? What is the competitive threat posed by new entrants?
- **Transition risk:** What are the consequences for current customers, distribution channels and business process if an organisation adopts e-commerce as a new growth strategy?
- **Customer-induced risk:** How can an organisation manage customer relations in an on-line world that is different from the traditional marketplace?
- **Business partner risk:** How can increasing dependence on business partnerships be managed?

Methods for minimising the risk in each of these categories have been suggested in the final section. It turns out that some methods for managing risk in electronic commerce are not dramatically different from the methods traditionally used in risk management (e.g., minimising transition risk is about successful change management). In other risk categories new and innovative risk management strategies are suggested (e.g., how to generate trust in an on-line world).

No organisation considering an electronic commerce strategy can avoid managing risk. This paper provides valuable guidance to managers seeking to reduce risk in developing and implementing such a strategy.

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