# GLOBAL ELECTRONIC COMMERCE PROCESS: BUSINESS-TO-BUSINESS

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## ABSTRACT

The integration of new communication and information technologies (CITs) with SMEs' existing information systems provides the information technology infrastructure for global electronic commerce (GEC). These can be used to create competitive advantages for enterprises by facilitating worldwide communication and collaboration among buyers, potential customers, enterprises, partners and suppliers. By utilizing CITs, SMEs are able to reduce the problems and risks related to technology and/or business and to provide effective assistance in the GEC process. This study introduces a new GEC methodology, which can systematically guide enterprises to globalize and facilitate rapid access to foreign markets. This study presents the results of research work, which examined how SMEs can gain competitive advantages through GEC. This study presents a conceptual framework of the GEC process (business-to-business) for SMEs. This framework can assist SMEs in identifying GEC opportunities and strategies. It is proposed that SMEs can communicate, collaborate and co-operate with customers, suppliers and partners through networking systems. They can achieve unique benefits in their GEC efforts as well as create competitive advantages in an intensely competitive and extremely turbulent global environment. This study also presents frameworks for problem and risk reduction.

## 1. INTRODUCTION

Today's business environment has become global and competitive (Palvia, 1997; and Tersine and Harvey, 1998). Due to the liberalization of trade and the impact of new communication means, improved logistics services and electronic banking systems and other factors, there has been a clear increase in global competition (Nahar, 1998b and 1998d). As a result, small and medium-sized enterprises (SMEs) are already facing competition in their domestic markets and will face more intense competition in the future. SMEs should expand into the global market place in order to survive and enable long-term growth.

New communication and information technologies (CITs) can eliminate or at least diminish the barriers of distance, geography and time. Enterprises are benefiting from using the Internet technology in their internal operations (Intranet; Hills, 1997; and Nahar, 1998b), in communicating with their partners and customers (Extranet; Baker, 1997; and Nahar, 1998a, 1998c and 1998d) and in their worldwide open activities (Internet; Hamill and Gregory, 1997; Kannan, Chang and Whinston, 1998; Hoffman and Thomas, 1996; Nahar and Savolainen, 1997; Quelch and Klein, 1996; Vassos, 1996; and Nahar 1998b and 1998c). Huge number of enterprises and people from around the world are already connected to the Internet and the number is increasing rapidly. This explosive growth phenomenon of the Internet, in addition to the emerging capacities of electronic commerce are increasing opportunities for global electronic commerce (GEC, i.e. conducting exports or imports on a worldwide basis utilizing new CITs).

GEC can revolutionize the way enterprises do international business. SMEs can obtain large benefits through innovative uses of the CITs in their GEC efforts. GEC can also provide various benefits to customers, suppliers, and even to countries. Electronic commerce is helping some enterprises to run businesses more effectively and efficiently.

There is tremendous potential for GEC, yet there is no effective framework currently existing for the successful execution of the GEC (business-to-business) process. Due to this lack of framework many SMEs have not been able to understand and obtain competitive advantages (competitive advantage refers to the case where the enterprise's product and/or service has a greater added value than that of the competitors) from their GEC efforts. Problems and risks preventing the flourish of GEC include a lack of GEC process model, merchant/customer trust, privacy, network robustness, reliability, speed, intellectual property protection, etc. To date, only a limited number of large companies, such as Cisco Systems Inc., Amazon.com and Dell Computers are making profits from their GEC efforts.

The main research problem of this study has been identified as: How can new CITs facilitate GEC (business-to-business) effectively and efficiently for SMEs and overcome problems and reduce the risks? This study began with a literature review and subsequent investigation of Internet resources and databases. The study then conducted in-depth interviews of SMEs (e.g. Michael Richter Ltd., Pronet Inc., etc.). Through analysis, the study identified the tasks in GEC, identified CITs (e.g. e-mail, electronic data interchange, electronic funds transfer, Internet, Extranet, etc.) relevant for GEC and developed a model for the GEC process utilizing new CITs. It also identified the problems and risks and suggested solutions for reducing the problems and risks. Global reach of the Internet and Extranet, Intranet and resources of conventional information technology systems have been synergistically integrated. These can provide the information technology infrastructure for GEC. The Web, in addition to other CITs can be used to bring together suppliers, employees, partners and customers on a worldwide basis.

Our model and ideas are tested in practice by an enterprise (e.g. Akisumi Ltd. in Finland) and this enterprise has achieved different benefits (see Section 2.2). Finally, the results of literature review, interviews and testing were collected together, analyzed and conclusions were drawn. This study presents a conceptual framework of the GEC process for SMEs and argues that SMEs can communicate, collaborate and co-operate with customers, suppliers and partners through networking systems thereby gaining competitive advantages.

This paper is comprised of five major sections. The introduction is described in section 1. Section 2 develops a model for the GEC process in the context of SMEs. The advantages of this model are also described in this section. Section 3 develops the frameworks that present the problems and risks associated with GEC. Remedies for reducing these problems and risks are also suggested in this section. Section 4 exhibits the recommendations for successful GEC. In section 5 conclusions are drawn and implications of the research are discussed.

## 2. DEVELOPING THE MODEL FOR GEC PROCESS

### 2.1. Global Electronic Commerce Process Model

This study contends that to make GEC effective and efficient it should be considered as a series of collaborative processes. Global collaboration among enterprise's employees, suppliers, partners, customers and different activities of the GEC process can be conceptualized as a framework. Twelve interlinked and overlapping activities have been identified (see Figure 1) and described briefly below. Chronological order and the number of activities may vary in some cases, for example, some digital products and/or services can be delivered through the Internet, consequently shipping arrangement are not required. Through the GEC process, the supplier interacts with the customer, information flows in both directions, money is paid to the supplier and the product and/or service is sold/transferred to the customer. In this section, new CITs (e.g. Internet, Intranet, Extranet, etc.) have been integrated with SMEs' existing traditional information systems.

The new CITs can be integrated and implemented in two or more stages and therefore become cheaper for the enterprises as well as easier to implement. In the first stage, the enterprise could integratedly and systematically utilize CIT tools and network services. The first stage can be implemented within 4 months. The enterprise should train the marketer to utilize the model effectively and efficiently as well as to make some adjustments according to the scope of the enterprise and the particular market to be promoted.

### 2.1.1. Assessing readiness and suitability for GEC

This activity includes the analysis of an enterprise's strengths and weaknesses and the determination of the extent to which they facilitate or hinder its competitiveness in the target markets. The analysis may cover several areas depending on the enterprise, its products and target markets as can be seen in Table 1 (Nahar, 1998b).

**Table 1. Possible areas to be covered in assessing readiness for the GEC**

| **A. Product attributes** | **B. On-line Marketing capacity** |
|---|---|
| • meeting customer needs/or segments<br>• modification needs<br>• packaging<br>• stage of the product life cycle | • IT infrastructure and IT skills of the employees<br>• willingness and ability to promote<br>• familiarity of the enterprise brand name<br>• ability to price competitively and contribute to overall profitability<br>• adaptability and flexibility of logistics |
| **C. Production capacity and technical competencies** | **D. Adequacy of resources** |
| • plant capacity<br>• technical skills of employees | • ability to finance international business<br>• motivated human resources |
| **E. Managerial capacity** | **F. Others** |
| • qualifications of management, familiarity with international business<br>• knowledge of foreign languages<br>• flexible attitude, creativity, dynamism, commitment to international business<br>• willingness to train and acquire needed skills | • willingness to do the needed R&D as well as the market research<br>• ability to co-ordinate the international business activities and handle problems |

Using modern CITs, SMEs can collect internal and external data in a planned way, process and analyze this data and thereby identify their strengths and weaknesses.

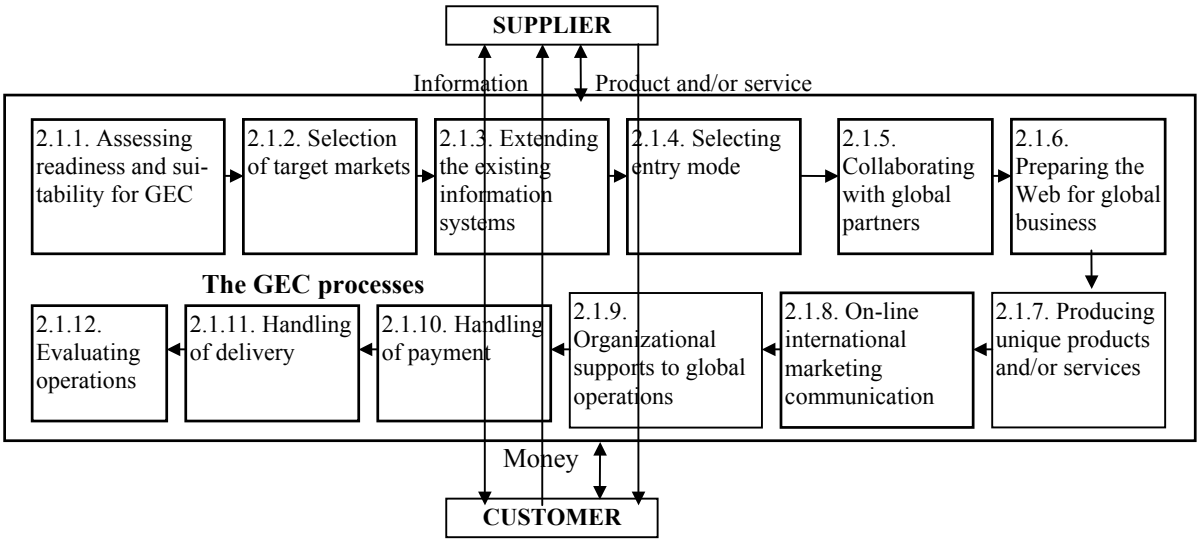


**Figure 1. Global electronic commerce process model**

### 2.1.2. Selection of target markets

International market research is important. It helps in the selection of potential markets and launching of a successful GEC. The following factors should be analyzed in selecting the markets: potential size of the market; potential market share/sales for the enterprise products and/or services; major characteristics of potential competitors; economic, political and social environments; information technology and other technological developments; response characteristics of the market in terms of the marketing mix, i.e. product, price, promotion and distribution; international logistics requirements necessary to serve the market; the resource requirements to serve the market; and suitability of the market in relation to the enterprise's goals and competitive advantages.

The enterprise has several options for international market research. It can buy cost-effective international market research services from specialized companies (e.g. Vivamus, http://www.vivamus.com and Nielsenmedia, http://www.nielsenmedia.com/). Alternatively, the enterprise can send an e-mail message to a specialized mailing list in order to locate and contact an international market researcher. This expert can provide customized international market research services cost effectively. The enterprise can also do its own research utilizing databases of DIALOG (http://www.dialog.com), LEXIS-NEXIX (http://www.lexis-nexis.com), Stat-usa (http://www.Stat-usa.gov/) or Strategis Canada (http://strategis.ic.gc.ca.). The Michigan State University (http://ciber.bus.msu.edu/busres.htm) has extensive WWW resources relevant to the international marketing research.

### 2.1.3. Extending the existing information systems

In order to launch GEC, SME should extend its IT infrastructure. This extension of IT infrastructure can be divided into several stages. At the first stage, cheaper and easier to use CITs can be utilized. Using the tasks/functions identified in the GEC process review, CITs requirements can be developed. For each identified requirement, cheaper, easier to implement, easier to use and reliable performing solutions should be identified. Selected CITs may include: the Internet, Intranet, Extranet, EDI, database, push technology, Web, teleconferencing, video conferencing, and autoresponders; they can vary slightly depending on the products and/or services to be marketed. Planning and budgeting for implementation should be done next and implementation should be managed. Also potential mistakes, problems and risks should be identified and counter measures should be taken.

EDI systems require extensive diffusion into the enterprise's own internal and external organizational systems in order to get strong benefits. Initial investments for acquiring Internet enabled EDI is often less expensive and therefore affordable for small and medium-sized enterprises. Internet enabled EDI is easier to integrate with an enterprise's existing information systems. It allows the transfer of documents to all information systems. It also allows trade with companies that have implemented EDI, as well as those that have not. It enables better interaction between organizations, enhances responsiveness, streamlines business processes, increases productivity, and improves competitiveness. Internet EDI has become more reliable and is quite inexpensive. It can help in reaching new customers, suppliers, markets, and can speed messaging, and movement into global electronic commerce. Using EDI over the Net has become easier due to the advent of a variety of applications (e.g., Netscape's CommerceXpert). In addition, several VANs are offering EDI over the Internet on a limited scale, with plans to provide on a larger scale.

Training should be provided to supplier's employees in order to use the GEC process model. The enterprise should get its Internet connection from a cost efficient reliable Internet service provider, who provides professional helpdesk service for long hours, keeps the network systems working smoothly 24 hours per day, and is able to solve problems very quickly and flexibly.

### 2.1.4. Selecting entry mode

In conventional international marketing practice, SMEs start exporting through domestic middlemen, foreign representatives or directly to customers. All of these methods are very time consuming and slow; prices of the products increase due to high marketing expenses and the middlemen's commission. In addition, it is very difficult to get enough information regarding customers, competitors and markets. Through WWW, SMEs can offer their products and/or services directly to buyers. They can also collect important information about customers. WWW diminishes the importance of middlemen, decreases marketing expenses and facilitates GEC. As a result, customers get lower-priced products and/or services and SMEs make higher profits.

### 2.1.5. Collaborating with global partners

GEC is a series of collaborative processes. It requires collaboration among the enterprise's employees, suppliers, partners, customers and others. They must work synergistically in order to achieve their goals in the turbulent global environment. Web based Groupware enables SMEs to establish worldwide Groupware environments and collaborate effectively with all their partners around the world. Web based Groupware is inexpensive, more quickly developed and more easily managed than other systems.

Various video conferencing systems provide video conferencing facility over the Internet on a worldwide basis. It allows the sharing of ideas among people across nations or continents. This offers enterprises the capacity to demonstrate products and services to overseas customers and press. It can be used for sales negotiations, problem solving, business and project meetings, executive and corporate communication, expert consultation and so on.

Video conferencing can save time and the expenses of overseas travelling. It should be noted that the quality of video conferencing over the Internet is not yet ideal due to limited bandwidth, but this problem will disappear when more appropriate CITs will be developed.

### 2.1.6. Preparing the Web for global business

An SME can simultaneously reach people around the world at minimum costs through its multilingual Web pages. Customers from important markets such as Germany, Japan, France, China and Brazil are more willing to visit Web sites in their own language and get information in their local language (Nahar and Savolainen, 1998). The language content and visual component(s) should be developed with consideration of the cultures of the target markets. Automatic translator software can translate the inquiries into English, and a quick reply can be given. The automatic translation is less thorough than a translation by a professional translator, but nonetheless it can serve the purpose. Companies (e.g. Cisco Systems Inc., Dell Computers, Michael Richter Ltd.) are maintaining multilingual Web sites. The detailed Web page(s) can be in English with information about the enterprise, the people, products, risk free buying, order form and different options of ordering, feedback form, the e-mail and postal address, telephone and fax numbers of the enterprise. The information should be accurate and comprehensive and the site must be kept current. The site must be quick to download, information should be easy to locate and the site may include databased search features. The Web site hosting service provider should possess advanced Internet technology and capabilities and should provide highly effective and efficient customer support. The Web page information should be integrated into the marketing strategy and overall business strategy of the enterprise.

### 2.1.7. Producing unique products and/or services

Relational databases can be connected to an enterprise's Web site. The enterprise can then obtain the capacity to collect customer data. This allows the enterprise to produce unique products or services with the collaboration of suppliers. The enterprise can use the WWW to link its suppliers to the enterprise inventory system, and subsequently link this information to the enterprise's customer ordering process. This results at the enterprise's supply chain where inventory levels are automatically fitted to demand. The enterprise improves customer

intelligence, as well as relations with suppliers, avoids problems of excessive or shortage of inventory, eliminates paperwork and increases productivity.

### 2.1.8. On-line international marketing communication

There are several effective and low cost CIT tools and network services are available for an SME to communicate with the potential customers around the world and facilitate GEC successfully. One effective on-line marketing communication approach is to combine several of these tools and to use them innovatively and systematically in the on-line international marketing communication process.

1. There are several strategies to attract customers to non-English web pages: a) registering the site to various local engines and indexes will direct the potential customer (inquirer) to non-English Web pages; b) exchanging links with local relevant web pages of the industry, topic or concept. This will point people to the SME's web site; and c) press releases of important issues or great incidents to local media can increase the interest among prospective customers and so encourage their visits to the web pages.
2. Sponsoring popular e-zines and digests, posting to trade mailing lists and posting buy/sell offers to trade sites of WWW, expose the enterprise's offer to buyers all over the world. Publishing articles in e-zines will make the enterprise known as a specialist.
3. The inclusion of a signature file with posting to mailing list and newsgroups or to articles can draw attention to enterprise Web site and autoresponders.
4. Autoresponders can be utilized to respond 24 hours per day to inquiries with information in the languages of targeted countries. They are very useful and inexpensive.
5. Teleconferencing and video conferencing over the Internet are useful for making sales negotiations, for post sales communications, etc.

More detailed discussions of on-line international promotion can be found in (Nahar, 1998d; and Nahar, Huda and Tepani, 1998e).

### 2.1.9. Organizational supports to global operations

Organizations should achieve the capability to develop GEC strategies and be flexible enough to effectively and efficiently serve foreign markets and operations. Management must assign appropriate responsibility to appropriate persons, as the foreign markets typically require a number of distinct operational activities. GEC-trained and internationally experienced persons are required for documentation, international payment and international shipment. The organizational structure should be adapted at the various stages of globalization. The SMEs can establish networked organizations (i.e. CIT-enabled geographically distributed organization) and utilize international business-trained and internationally experienced teleworkers at a low cost.

### 2.1.10. Handling of payment

The enterprise should use such payment mechanisms which are familiar in the target country (e.g. in the US credit card payments are quite normal, but this is not the case in Germany). The customer can provide credit card numbers by e-mail through a secure form on the supplying firm's web site. Credit cards are not suitable for the payment of large sums of money. Thomas Cook (http://www.thomascook.com) offers a customized on-line transfer procedure for an international transaction. The enterprise has also other options for international payment arrangements, such as wire transfer, CAD (cash against documents) or L/C (letter of credit). L/C may not suitable for the payment of services and digital products.

### 2.1.11. Handling of delivery

The products can be delivered to a foreign location by ship, air or multi-modal methods. If the enterprise sends goods by ship or multi-modal methods it can arrange reservations through the Web (e.g. Msas, http://www.msas.com/). In the case of urgent delivery, it can use an express delivery service through the Web (e.g. FedEx, http://FedEx.com). It can use Web sites (e.g. Forwarders, http://forwarders.com) to request a freight quote on its shipment; it can confirm the shipment through the Web and arrange the international shipment. It is also possible to track the

shipments via the Web. Software and services do not require shipment arrangements when they are delivered through the Web.

#### 2.1.12. Evaluating operations

The enterprise should monitor the outcome of operations to ensure that the expected results are being achieved. Databases can provide necessary information for monitoring the results. The enterprise should monitor the changes in external environmental factors. Digital agents can constantly scan relevant information, collect and bring them to the mailbox of the enterprise. The enterprise should remain in control of the international marketing situation through the adaptation of its strategies and tactics. It should identify various problems which may occur in international markets as well as their causes and the means to solve them.

### 2.2. Advantages of the GEC Process Model

The GEC process model has a large effect on an enterprise's GEC performance. It can provide different benefits to SMEs. The implementation and utilization of the GEC model by an enterprise (Akisumi Ltd.) has provided the following benefits.

1. The model helps in conceptualizing the GEC process in order to identify the action sequence and relationships between actions.
2. Information of a customer's inquiry is transmitted very quickly to the enterprise, partners, and suppliers; they can unitedly develop the solution through collaboration. The above process reduces the duration from customer inquiry until product delivery.
3. The GEC process increases the enterprise's order processing capacity.
4. The customer gets quick and customized service which improves customer pre and post sales service.
5. The customer gets cost efficient reliable service which may improve customer relations and satisfaction, and may increase loyalty.
6. The GEC process reduces international marketing and order processing expenses.
7. The GEC process shortens time, which in turn saves money and makes the enterprise cost efficient.
8. Customer knowledge is improved through collaboration with the customers. Through web and other CITs market data are collected which improve market intelligence.
9. The GEC process can help enterprises to win more customers and increase market share and makes them highly cost competitive.
10. The GEC process decreases expenses and increases profits.

By providing the above unique benefits, the GEC process model can create competitive advantages for SMEs. The model can be useful for large enterprises as well.

## 3. DEVELOPING THE FRAMEWORKS FOR PROBLEMS AND RISKS REDUCTION

### 3.1. Problems and Risks in Global Electronic Commerce

GEC can be complex and risky because of several negative, influential factors. Such factors include: a lack of GEC process model, merchant/customer trust, privacy, network robustness and so on. Even when the best CITs are used, if problems and risks are not identified beforehand, and precautions not taken, these problems and risks can cause high damage to GEC. Therefore, SMEs must take actions to avoid unnecessary jeopardy. Our empirical study identifies several factors creating obstacles to the flourish of GEC. In this paper, we briefly describe the major factors and suggest some solutions in order to overcome these problems and risks. The problems and risks and their remedies are exhibited in Table 2 and Table 3.

**Table 2. Problems and remedies for reducing the problems**

| A. Enterprise related problems | A. Remedies for enterprise related problems |
|---|---|
| 1. GEC is complex for many SMEs due to the lack of an effective GEC process model. SMEs lack the know-how to organize business activities that can be successful in the global electronic business environment. | 1. The GEC model prioritizes different activities and their processes. An SME can select one or few activities for learning. The enterprise can then check whether it has achieved the desired objectives. If it has not achieved the objectives, the enterprise should restart. When it achieves the objectives, the enterprise can proceed to the next activity. Thus an SME can proceed step by step. |
| 2. SMEs are failing to effectively present and distinguish their Web pages from the existing millions. | 2. SMEs can register their Web pages to overseas search engines and indexes. In addition, the use of electronic promotional tools, for example, software agents, mailing lists, electronic magazines and publishing the home page address in traditional media will create awareness of the product and/or service amongst customers. |
| 3. Merchant/customer trust is difficult to achieve in the electronic environment as there is an absence of eye contact (Clarke, 1997). | 3. Employees of SMEs can participate in specialized news groups and mailing lists. They can provide professional advice for the inquiries of others. These employees can add the signature file of the enterprise while posting their e-mail advice. The enterprise should also publish articles in e-zines and e-journals. These will establish the enterprise as an expert of a particular industry in the electronic environment. The enterprise should register itself with various organizations, for example with World Trade Center, Dun and Bradstreet etc. |
| 4. The intellectual property protection mechanism is very weak in the electronic environment (Kosiur, 1997; Minoli and Minoli, 1997; and OECD, 1997). | 4. Putting copyright on digital products and services, patenting digital process, adding a copyright notice to every Web site page, using technology that prevents Web pages from being copied easily, and locking and distributing very valuable material by using Adobe Acrobat (PDF) security features, showing contents or demo version and after receiving payment the whole product will be delivered, recording information related to downloading by using agent software, adding a section to Web sites on how to become an authorized representative for company products and services, including information on how people can use material legitimately and according to company rules, can improve intellectual property protection in the electronic environment. Through scanning the cyberspace by agent software, companies sometimes can find out where stolen digital materials have been used. Then they take the print out of the materials and the source code. They inform the Internet Service Providers (ISP) about the infringements and contact the Webmaster of the site where the stolen materials have been using. Companies ask the person to be either a company representative, or take a license of the product or service and remove the material from illegal use. If the Webmaster does not obey, the ISP disconnects his Internet connection, which is very harmful for any Internet user. |
| 5. Lack of electronic commerce skills within the enterprise. | 5. SMEs can train themselves to utilize Internet resources. (There are abundant training resources in the Internet). They can get help from experts located in other parts of the world. SMEs can gain access to low cost consulting services of various international marketing organizations through Internet. In addition, they can post their inquires to various mailing lists and get replies within short periods. |
| 6. Technology is changing extremely fast; employees can not keep pace with the speed of change. | 6. The enterprise can recruit top talents and arrange continuous training to acquire new technologies, can collaborate with researchers, universities, R&D organizations and companies through CITs, in order to remain technologically competitive. |
| **B. Cultural related problems** | **B. Remedies for cultural related problems** |
| 1. Difficulties in communication due to different languages. | 1. There are bilingual remote workers, translation companies and translation software. These provide several options for SMEs to overcome language barriers. |

**Table 3. Risks and remedies for reducing the risks**

| A. Customer related risks | A. Remedies for customer related risks |
|---|---|
| 1. Customer protection law for GEC is not established (OECD, 1997). | 1. While buying over the Internet, customers should check the various aspects (e.g. approval of international standard organization, reputation of the brand name) of the enterprise. |
| 2. There is a high chance of misuse of sensitive customer information which can cause damage to privacy (Kosiur, 1997; Minoli, Minoli, 1997; and Soko, 1995). | 2. Customers should provide personal information only to reliable and credible enterprises. Normally these enterprises are very sensitive to their image, they do not want to destroy their image through causing damage to the customer's privacy. |
| 3. Customers do not have confidence in the safety and soundness of electronic payment systems (Loshin and Loshin, 1995; Minoli, Minoli, 1997; and Soko, 1995). | 3. The enterprise can use software and other security technologies such as SSL, payment systems such as First Virtual and CyberCash, and digital currencies such as eCash and Smart Cards (Loshin and Loshin, 1995) for EC from reliable companies which ensure that the advanced secured electronic transaction technology is being used in protecting the credit card transactions on the Web. |
| **B. Technical related risks** | **B. Remedies for technical related risks** |
| 1. The Internet may not be fully secure for information storage nor for information transmission (Minoli and Minoli, 1997; and Loshin and Loshin, 1995). | 1. For the Internet security, several options are available including address filtering, access lists, firewalls, encryption, emergency disconnection and so on (Vargo and Hunt, 1996). |
| 2. Computer viruses easily infect the information systems of the enterprise through the Internet. | 2. Installing and continuous upgrading computer virus protection software, instructing employees strictly about the installation of their own private software and keeping back up files can reduce the risk of computer viruses. |
| 3. The Internet's performance may not be consistent and is not fully reliable (Kosiur, 1997; and Vassos, 1996). | 3. Highly professional network service providers can eliminate the majority of reliability problems. |
| 4. The Internet can not carry a high communication load (Vassos, 1996). | 4. The use of ISDN line, cable modem, satellite technology, and new technologies (Northern Telecom and NORWEB Communications technology) allow data to be transferred over electricity power lines into homes at speeds of over one megabit per second, up to ten times faster than ISDN. Transmission of compressed files can also reduce the problems related to communicating over the Internet. |

The enterprise must research problems and risk-related issues at the inception stage of its GEC endeavor. It should identify potential problems and risks and determine the probabilities of occurrence as well as their impact. It must make plans to reduce the problems and risks. Most serious problems and risks should be monitored at least once a week.

## 4. RECOMMENDATIONS FOR SUCCESSFUL GEC

The empirical findings show that in order to become successful in GEC and gain competitive advantages in a competitive global environment, SMEs should:

1. Effectively perform international market research and identify market opportunities. SMEs should also do on-going international market research, as the present global business environment has become highly complex, with rapid and unexpected changes occurring often.
2. Focus intensely on customers and their needs, increase customer intelligence, improve customer satisfaction and loyalty. SMEs should develop and effectively utilize databases.
3. Offer value added, cost competitive, culturally compatible, unique products and services.
4. Focus on effective and intensive on-line international marketing communication.
5. Concentrate on developing brand name credibility.

6. Develop a Web site which is user friendly in locating the required information, rich in contents, and culturally friendly.
7. Offer risk free buying with easy ordering and several options for payment.
8. Arrange fast order fulfillment and speedy delivery.
9. Identify problems and risks in the inception stage of the GEC process and make plans to reduce the problems and risks.
10. Use the most productive CITs and upgrade continuously.
11. Adapt strategies and tactics according to changes of environment.

This list is not exhaustive. Managers should identify the difficulties and problems and their causes in order to rectify the situation. They will then be in the position to propose new solutions.

## 5. CONCLUSIONS

The business environment has become global, intensely competitive, complex and turbulent. Companies are facing competition in their domestic markets. Therefore, the study of competitive advantages of companies through GEC is important. Due to the advancement of CITs in recent days, faster, cheaper and easier to use CITs are available. Considering these factors, it has become important to study how companies can utilize new CITs, manage risks and execute GEC successfully. This study began with a literature review of printed and digitized resources (databases of journals, Internet resources, etc.). In-depth interviews with companies, practitioners and researchers were then conducted.

This study introduces a new GEC methodology, which can systematically guide companies to globalize and facilitate rapid access to foreign markets. The aims of this study have been to develop a GEC process model, and frameworks for problem and risk reduction. First, a conceptual model of the GEC process was conceived and developed. The GEC process model consists of twelve inter-linked and overlapping activities or phases. The chronological order and number of activities may vary in some cases. Second, problem and risk reduction frameworks were developed through identifying potential problems and risks that can create negative impacts on GEC. Solutions for reducing the problems and risks are suggested.

The GEC process model has been tested in practice. The test(s) proved that the process model offers the following unique advantages. By utilizing the model and frameworks, companies can identify these problem and risk factors and plan effectively for managing them. GEC can be executed in a controlled way, which avoids problems and risks. The model provides other benefits such as shortened time between customer inquiry and product delivery. The model facilitates worldwide collaboration; increases cost efficiency, improves market intelligence, improves pre- and post-sales service, increases customer satisfaction, increases customer loyalty, increases market share, reduces problems and risks, and creates a competitive advantage. The GEC process model is, therefore, effective and efficient.

Some implications can be offered to governments. Governments are providing conventional export training to companies in an effort to start and/or increase exports, a time consuming, complex and costly operation. Governments can train companies to utilize the GEC model and frameworks as an alternative to conventional export training.

The research delivers a GEC process model, which can be used as a basis for further research in the field of GEC. Future empirical and conceptual research will be helpful in further refining the model. GEC has the ability to uncover new and critically important areas of research, as it offers numerous benefits and utilizes global computer networking.

In-depth research is necessary, however, to discover how more advanced CITs could improve the following:

- Global market intelligence
- Collaboration among global partners

- GEC project management in global environment

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