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THE DEVELOPMENT OF A STRATEGY-BASED
E-COMMERCE PLANNING MODEL AND THE
EXPLORATION OF ITS APPLICABILITY

by

Judith Anne Decou

A Thesis

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2004

THE DEVELOPMENT OF A STRATEGY-BASED E-COMMERCE PLANNING MODEL AND THE EXPLORATION OF ITS APPLICABILITY

by

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ABSTRACT

In the rush to bring their ventures online, organizations may have overlooked or underestimated the role of planning in e-commerce startups. Lack of adequate planning may have contributed to the failure of many e-commerce ventures. To assist in the planning phase, a model could be useful. However, no planning model for e-commerce ventures existed. In this thesis, a model is developed to assist practitioners in planning a new e-commerce venture. The model contains seven dimensions of finance, legality, logistics, marketing, operations, security and technology. These seven dimensions surround organizational strategy, the core of the model. Implications of the adoption of this planning model for managerial practice are also identified. To gain more understanding of the applicability of the model for practitioners, an exploratory survey of Canadian organizations with e-commerce operations is conducted. Observations of the survey and suggestions for further research are also presented.

CO-AUTHORSHIP

The work in Chapters 2 and 3 of this thesis is the result of collaboration between Dr. Diana Kao and me (Judith Anne Decou). Chapter 2 describes a literature survey of e-commerce models conducted by me. From that search, I classified the models according to their relevance within the systems development life cycle of the introduction of new technology into an organization. Dr. Kao suggested that I classify them using this structure. In addition, I examined the models for themes relating to areas of business, and classified each model according to the theme(s) that it reflected. From that classification, I developed a planning model. I continued by describing how each dimension of the model was relevant to e-commerce planning and provided an example to assist practitioners. This research was conducted under the guidance of Dr. Diana Kao, who provided suggestions for improvements and contributed to the final text to the manuscript. Chapter 3 reports the results of a survey developed, conducted and analyzed by me under the guidance of Dr. Diana Kao.

DEDICATION

This thesis is dedicated to my parents, who have always done whatever is humanly possible to provide my siblings and me with anything and everything that would help us acquire "good educations". It is dedicated to the memory of my father, Norman Wesley Decou. I would never have come this far without his support. He is missed. It is also dedicated to my mother, Laura Ellen Decou, who continues to provide me with the encouragement and support so valued on lonely research journeys.

ACKNOWLEDGEMENTS

I would like to acknowledge the support and guidance of my thesis committee. My advisor, Dr. Diana Kao, has been a mentor and friend. She had shown unfailing support throughout a difficult period of my life and I cannot thank her enough. My advisors Dr. Howard Lin and Dr. Xiaopeng Yin have offered invaluable input into this endeavour.

I would also like to acknowledge Richard Dumala and Sherry Simpson of the University of Windsor Web Developers for their assistance in helping me to turn a questionnaire on paper into something that could be administered over the Web. They made what may have been a daunting task seem simple.

It would be impossible to acknowledge everything that my family and friends have done for me throughout this journey. I wouldn't be here without them.

Last, but not least, I want to express my appreciation to my friends of the BBS "Canada Campus" – Lilly Buchwitz, David Bussière, Daniel Friesen, Denise Ghanam, Dale Horniachek, David Hutchinson and Jim Stevens. Their unbounded enthusiasm and support helps me to aim for the stars.

STATEMENT OF ORIGINALITY

This thesis incorporates the outcome of research undertaken by me under the supervision of Dr. Diana Kao. The research is described in Chapters 2 and 3 of the thesis. Contributions to this research made by Dr. Kao are described in the co-authorship section (Pg. iv). In addition, anonymous referees offered suggestions for improvement to the article forming Chapter 2. The major suggestions were to include the word "strategy" in the title of the article and to include an example for the use of the model by practitioners.

I certify that, with the above qualification, this thesis, and the research to which it refers, are the product of my own work, and that any ideas or quotations from the work of other people, published or otherwise, are fully acknowledged in accordance with the standard referencing practices of the discipline. I acknowledge the helpful guidance and support of my supervisor, Dr. Kao.

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1. INTRODUCTION

1.1 Background

In the late 1990's, the adoption of Internet e-commerce for existing and new businesses was undertaken with a sense of urgency. Phrases such as "first-mover advantage" and "exciting new business models" were frequently heard. Between 1998 and February 2000, the Internet sector earned over 1000 percent returns on its public equity (Ofek & Richardson, 2003). For an entrepreneur with a novel idea, there were seemingly unlimited opportunities and quantities of available venture capital available.

In 2000, it became apparent that the dotcom boom was over. With spectacular losses, many of the "exciting new business models" failed (Upside Today, 2001). The bottomless well of available financing suddenly evaporated. The sense of urgency was replaced with a need to exercise caution. In the time since the dotcom bust, many suggestions have been made for improving the chances of having a successful e-commerce venture (e.g., Porter, 2001, Ofek & Richardson, 2003). The ways that e-commerce ventures can reduce problems may be as diverse as those available to traditional ventures. This thesis contends that adequate planning may help avoid problems.

Early e-commerce guidebooks often emphasized the importance of businesses adopting e-commerce (e.g., Kalakota & Whinston, 1997; Korper & Ellis, 2000), but did not provide tools for planning e-commerce ventures. Because a tool for planning could be beneficial to new e-

commerce ventures, the potential usefulness of a planning model for e-commerce was recognized.

1.2 Purpose of Thesis

Lack of planning and the lack of guidance for planning may have contributed to the problems encountered by many e-commerce ventures. Because proper planning will continue to be relevant for e-commerce ventures, a tool to assist in the planning process is also relevant. In order to assist practitioners in the planning process, an e-commerce planning model was developed and its applicability for practitioners was explored.

1.3 Thesis Statement

The thesis statement may be expressed as follows:

New e-commerce ventures should undertake a planning process prior to adopting e-commerce. This process may be facilitated by an e-commerce planning model.

1.4 Reason for Developing a Model Specifically for E-commerce Planning

An e-commerce venture possesses characteristics that are different from those of a bricks-and-mortar venture. Some of the differences are visible in the central role telecommunications technology plays in the ventures and in the existence of an instantaneous, potentially global market for any products being offered online. Because there are features unique to an e-commerce venture, there is relevance in providing a specialized tool to assist practitioners in e-commerce planning.

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The value in developing a strategy-based e-commerce planning model when traditional strategic planning models could be used to address similar issues was also considered. The decision to develop a model for e-commerce planning was supported by a search of strategic planning literature. No framework was located that incorporated all of the dimensions presented in the strategy-based e-commerce planning model developed in this thesis (e.g., Wheelen & Hunger, 2002). While it is possible that a similar model could be developed for traditional strategic planning, this model was developed specifically to assist in electronic commerce planning.

1.5   Approach to the Research

The first step taken in this research involved the adoption of a definition for electronic commerce. Chapter 2 of this thesis describes the debate concerning the meaning of e-commerce. Because this research was to be applicable to any possible form of e-commerce, the following broad definition was chosen from the existing alternatives.

> Electronic Commerce involves the undertaking of normal commercial, government,
>
> or personal activities by means of computers and telecommunications networks; and
>
> includes a wide variety of activities involving the exchange of information, data or
>
> value-based exchanges between two or more parties (Chan & Swatman, 1999).

Since a lack of planning could contribute to the problems encountered by many e-commerce ventures, it was believed that guidance in e-commerce planning would be useful to e-commerce practitioners. The next step involved examining existing e-commerce models to

determine if they could provide guidance for e-commerce planning. They were classified using the systems analysis and design framework to help categorize them as relevant to planning, analysis, design, implementation or maintenance. It was concluded that the existing e-commerce models did not address e-commerce planning.

The next step involved examining the existing models to determine which business dimensions should be incorporated into a planning model. Using dimensions implied by the existing models, the strategy-based e-commerce planning model was developed. In order to recognize the importance of corporate strategy in the planning process, strategy was placed at the center of the model, with the seven dimensions of finance, legality, logistics, marketing, operations, security and technology surrounding strategy.

The final step of this research involved exploring the applicability of the model to practice. A survey was developed to gather data from Canadian organizations that had started an e-commerce venture. Although the planning model was developed to be transportable to all forms of electronic commerce, this survey was developed for organizations with a presence on the World Wide Web. A pretest of the instrument was conducted. Using the input from this pretest, survey revisions were made. A pilot of the survey demonstrated that the response rate might be quite low (between 5 and 10 percent). The survey was then distributed to a sample of 5862 Canadian organizations that had an e-commerce component. Due to invalid addresses and spam blocking, a number of the surveys did not reach their destination. Eighty-one responses were received and the data were analyzed. Based on the observations collected from the survey, the applicability of the model and suggestions for future research were considered.

1.6 Structure of Thesis

This thesis has been written using the manuscript format. This chapter provides an introduction to the thesis. Chapter 2 consists of a published article "A strategy-based model for e-commerce planning". This article was co-authored by Dr. Diana Kao and Judith Decou and appeared in Volume 103 Issue 4 of Industrial Management and Data Systems (2003). Authorization to republish the article is addressed in Appendix 1 (Emerald Press, 2003). Chapter 3 is the unpublished manuscript entitled "Applicability of a strategy-based e-commerce planning model for Canadian organizations: An exploratory study", authored by Judith Decou and Dr. Diana Kao. The paper describes the exploratory survey, the applicability of the planning model for practitioners and a discussion of its observations. The survey received University Ethics Committee approval in November of 2003 (Appendix 5). The analysis and conclusions of the survey form the remainder of the chapter. Chapter 4 consists of the conclusions and contributions of this thesis and suggestions for further research in this area.

1.7 Summary

The thesis contends that there are benefits in planning e-commerce ventures. A strategy-based e-commerce planning model has been developed and a survey undertaken to explore its applicability to practitioners. This document describes the steps taken to develop an e-commerce planning model and a potential practitioner application for the model. It describes the methodology and observations of a survey exploring the applicability of the model for

Canadian organizations, the implications of this research and need for further research in the area of e-commerce planning.

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2. A STRATEGY-BASED MODEL FOR E-COMMERCE PLANNING

Kao, D. & Decou, J.(2003). *Industrial Management & Data Systems*, Vol.103 No. 4, pp. 238-252

2.1 Introduction

Adopting e-commerce in the business environment is considered advantageous and, perhaps, as many have argued (Kalakota & Robinson, 1999; Porter, 2001), necessary for an organization to remain competitive in the current business environment. As in any venture, there are a number of important factors that need to be considered, prior to initiating an e-commerce venture, during the planning phase. However, the survey of electronic commerce models presented in this paper suggests a lack of emphasis on the planning aspect of entering an e-commerce venture. While most of the existing e-commerce models confirm the merits of e-commerce, they offer little insight into planning e-commerce initiatives. We believe that the observed frequency of failures of e-commerce ventures may be due to lack of planning. This belief motivated us to explore the considerations critical to e-commerce planning, which subsequently led to the development of an e-commerce planning model.

To develop a comprehensive e-commerce planning model, a good starting point would be to investigate the planning aspects of existing e-commerce models. Another approach is to summarize discussions about e-commerce planning in related disciplines such as finance, law, marketing and operations. The e-commerce planning model presented in this paper is the result of an attempt to synthesize both existing e-commerce models and research in related disciplines. This all-inclusive and transportable e-commerce planning model will provide practitioners with a general overview of the critical success factors that may affect

the implementation of a new e-commerce venture. Such a model will maintain relevance to modifications in existing and emerging e-commerce operations.

A model is only useful when its implications to related managerial decisions are explored. In this paper we will discuss managerial issues concerning e-commerce planning. Therefore, the objectives of this paper are 1) to present a synthesized view of planning in existing e-commerce models, 2) to propose an e-commerce planning model, and 3) to discuss managerial issues related to the proposed model.

To this end, the paper is organized as follows. In the next section, we choose an e-commerce definition appropriate to our research. In the following section, a sampling of relevant e-commerce models is presented with discussions on the assistance each model may provide in e-commerce planning. Then, we compare examined models with the systems development life cycle. Using the familiar systems development life cycle as a metaphor will help practitioners relate e-commerce planning to a generally accepted and familiar process. The planning model is then presented with detailed discussions of its components and implications on managerial decisions. In the final section, we summarize the contributions of this model, with notes on the importance of future research in this area.

2.2 Defining E-commerce and E-commerce Ventures

The existing definitions of electronic commerce are varied. Researchers have been unable to agree on a conclusive definition for the concept (Mesenbourg, 1999; Riggins & Rhee, 1998; Swatman, 1996; Wilkins, Swatman, & Castleman, 2000). Perhaps the complexity of the

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elements of electronic commerce makes definition difficult and prompts researchers to suggest interpretations that focus specifically on their own areas of research (Wilkins et al., 2000). For this research, a definition that encompasses an inclusive interpretation of the components of e-commerce is adopted.

> Electronic Commerce involves the undertaking of normal commercial, government, or personal activities by means of computers and telecommunications networks; and includes a wide variety of activities involving the exchange of information, data or value-based exchanges between two or more parties (Chan & Swatman, 1999).

We believe that e-commerce should be defined in broad terms. Although the Internet is now at the forefront of discussions relating to electronic commerce, the definition should not be confined to business transactions over the Internet (Mesenbourg, 1999). Furthermore, the rapid evolution of technology supports the need to avoid narrow definition. The definition adopted in this paper for an e-commerce venture is that of a move towards an e-commerce mode. This definition supports any form or degree of e-commerce adoption.

2.3   E-commerce Models

As stated in the previous section, while few existing e-commerce models deal directly with the planning issues of e-commerce, many of the models have implications in the e-commerce planning process. While examining a large variety of published e-commerce models, we observed that each model tends to represent a specific view of e-commerce. These multi-faceted and sometimes overlapping views hindered a reasonable classification of existing e-

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commerce models. For the purpose of this paper, we will use three categories of e-commerce models that are considered relevant to the e-commerce planning process. The three categories characterized are models describing e-commerce, models depicting the e-commerce process, and models representing e-commerce business models. These three categories reflect e-commerce in decreasing levels of abstraction, with the models describing e-commerce being the most abstract. By categorizing the models in this manner, all e-commerce models may be classified. A selection of models is described below.

2.3.1 Models Describing E-commerce

The first selection of e-commerce models, models describing e-commerce, represent a fairly abstract view. Indeed, they might be considered as attempts to define the concept of e-commerce. Consequently, the descriptions of e-commerce presented in these models are as varied as the definitions of e-commerce discussed in the previous section. Six such models are considered below.

The Electronic Commerce Areas model (Figure 1) (Choi, Stahl and Whinston, 1997) is the first such model considered. This model depicts differences between e-commerce and traditional commerce. It portrays e-commerce as a three-dimensional space, with purely traditional commerce in the front bottom left area and purely electronic commerce in the back top right area. All other portions represent a mixture of the two commerce vehicles. This model also identifies product, agent and process as being three key dimensions by which to distinguish e-commerce from traditional commerce.

The relevancy of this model to the e-commerce planning process is three-fold. First, the representation underlines that e-commerce may be implemented to compliment an existing or new venture, or may be used to establish a totally electronic venture. Second, it identifies product, agent, and process as three important dimensions when planning an e-commerce venture. These three dimensions could be generalized under discussions such as marketing of product, technology, and operations. Third, it helps an organization visualize positioning in the spectrum of e-commerce ventures. It does not, however, assist in developing an e-commerce strategy.

FIGURE 1 - ELECTRONIC COMMERCE AREAS (ADAPTED FROM CHOI ET AL, 1997)
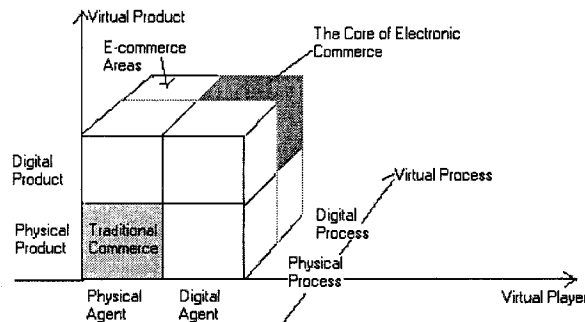
The second model examined is the Hierarchical Framework of E-commerce (Table 1), a seven-level framework developed by Zwass (1998). The theory presented in the framework is that the lower levels support the higher levels. Infrastructure supports services, which, in turn, support products and structures. A difficulty with the hierarchy is that the sequence of layers may not be sufficiently flexible to accommodate the changing functions and activities of e-commerce. It does, however, focus attention on important technical components to be considered within the e-commerce context (Chan and Swatman, 1999). From the perspective of an e-commerce planning model, this framework focuses attention on the

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importance of marketing, operations, technology and security in the ongoing functioning of an e-commerce venture.

TABLE 1 - THE HIERARCHICAL FRAMEWORK OF E-COMMERCE (ADAPTED FROM ZWASS, 1998)

Meta-Level	Level	Function
Products and Structures	7	Electronic Marketplaces and Electronic Hierarchies
	6	Products and Systems
Services	5	Enabling Services
	4	Secure Messaging
Infrastructure	3	Hypermedia/Multimedia Object Management
	2	Public and Private Communication Utilities
	1	Wide-Area Telecommunications Infrastructure

The third model investigated is the Electronic Commerce (EC) Value Grid (Riggins, 1998) (Table 2). This model was developed to aid managers in determining where Web-based electronic storefronts could improve profitability. A comparison of the value creation dimensions of efficiency, effectiveness and strategy to the dimensions of time, distance, relationships, interaction and product to identify 15 advantageous applications for e-commerce forms the essence of this model.

Although the EC Value Grid is specific to Web-based sales applications and may not readily adapt to other e-commerce developments, it is useful in identifying opportunities. From the perspective of planning, Riggins' model may help an organization clarify its strategy and set policies consistent with its strategies. It suggests such dimensions as logistics, marketing and technology as being important to e-commerce.

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TABLE 2 - THE ELECTRONIC COMMERCE VALUE GRID (ADAPTED FROM RIGGINS, 1998)

Value Creation

		Efficiency	Effectiveness	Strategy
Five Dimensions of Commerce	Time	Accelerate User Tasks	Eliminate Information Float	Establish 24X7 Customer Service
	Distance	Improve Scale to Look Large	Present Single Gateway Access	Achieve Global Presence
	Relationships	Alter Role of Intermediaries	Engage in Micro Marketing To Look Small	Create Dependency to Lock-in User
	Interaction	Make Use of Extensive User Feedback	User Controls Detail of Information Accessed	Users Interact Via Online Community
	Product	Automate Tasks Using Software Agents	Provide Online Decision Support Tools	Bundle Information, Products, and Services

The fourth model considered, the Electronic Commerce Domain Matrix (Riggins and Rhee, 1998), suggests four dimensions of e-commerce (Table 3). The matrix was developed by crossing the location of the application user (external or internal to the organization) with the type of relationship (technology enhanced or technology facilitated). The model is useful as a tool for classifying the specific focus of a venture. In the context of our research, the matrix suggests possible advantages in adopting e-commerce solutions. It also provides us with a framework with which to examine an entity to determine if one of the merits will contribute positively to the entity's goals. In the planning context, the model identifies the importance of marketing and technology to the venture, and therefore focuses on the need to examine these dimensions in the planning phase of a venture.

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TABLE 3 - ELECTRONIC COMMERCE DOMAIN MATRIX (ADAPTED FROM RIGGINS & RHEE, 1998))

	Improve Coordination with Existing Trading Partners	Market Creation to Reach New Customers
External	Cell 3	Cell 4
Internal	Improve Coordination with Internal Business Units	Information Exchange to Work with New Team Members
	Cell 1	Cell 2
	Technology Enhanced	Technology Facilitated

Location of Application Users

Type of Relationship

Fifthly, Chan and Swatman (1999) developed the Electronic Commerce Component Model (ECCM) (Figure 2). The purpose of the ECCM was to develop a research framework that included all current components and extensions of e-commerce. The meta-view of the model identifies legal, services and infrastructure as the components, with the e-commerce definition at its core. Within each component, the current state of that component is represented. The intent of the model is to provide an illustration that encompasses all aspects of e-commerce and to be representative of the concepts as time progresses. As technologies and environments change, the object within the component can also be changed to reflect modifications. The ECCM provides a useful snapshot for evaluating e-commerce. At any given point in time, and for any given configuration, the model may be employed to represent e-commerce concepts. However, it does not provide insight into processes or opportunities available within the context of e-commerce. As a tool for developing a planning model, the Component Model may support legality, logistics, technology and operations as potential model dimensions.

FIGURE 2 – COMPONENT MODEL FOR E-COMMERCE (ADAPTED FROM CHAN & SWATMAN, 1999)
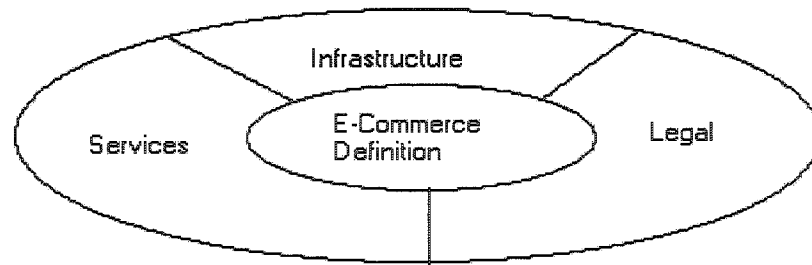
Finally, Porter (2001) examined the Internet as it applies to the value chain (Figure 3). In this depiction, Porter employed his well-known value chain model to examine web-based initiatives. Consequently, the focus was on strategy as it relates to the value chain. The model therefore suggests the dimensions of operations, technology, logistics and marketing as being potentially strengthened by the adoption of e-commerce strategies.

FIGURE 3 – PROMINENT APPLICATIONS OF THE INTERNET IN THE VALUE CHAIN (ADAPTED FROM PORTER, 2001)

Firm Infrastructure

- Web-based, distributed financial and ERP systems
- On-line investor relations (e.g., information dissemination, broadcast conference calls)

Human Resource Management

- Self-service personnel and benefits administration
- Web-based training
- Internet-based sharing and dissemination of company information
- Electronic time and expense reporting

Technology Development

- Collaborative product design across locations and among multiple value-system participants
- Knowledge directories accessible from all parts of the organization
- Real-time access by R&D to online sales and service information

Procurement

- Internet-enabled demand planning, real-time available-to-promise/capable-to promise and fulfillment
- Other linkage of purchase, inventory, and forecasting systems with suppliers
- Automated "requisition to pay"
- Direct and indirect procurement via marketplaces, exchanges, auctions and buyer-seller matching

Inbound Logistics
- Real-time integrated scheduling, shipping, warehouse management and demand management and planning, and advanced planning and scheduling across the company and its suppliers
- Dissemination throughout the company of real-time inbound and in-progress inventory data

Operations
- Integrated information exchange, scheduling, and decision making in in-house plants, contract assemblers and components suppliers
- Real-time available-to-promise and capable-to-promise information available to the sales force and channels

Outbound Logistics
- Real-time transaction of orders whether initiated by an end consumer, a sales person, or a channel partner
- Automated customer-specific agreements and contract terms
- Customer and channel access to product development and delivery status
- Collaborative integration with customer forecasting systems
- Integrated channel management including information exchange, warranty claims, and contract management (versioning, process control)

Marketing and Sales
- Online sales channels including Web sites and marketspaces
- Real-time inside and outside access to customer information, product catalogs, dynamic pricing, inventory availability, on-line submission of quotes, and order entry
- On-line product configurators
- Customer-tailored marketing via customer profiling
- Push advertising
- Tailored on-line access
- Real-time customer feed-back through Web surveys, opt-in/opt-out marketing, and promotion response tracking

After-Sales Service
- On-line support of customer service representative through e-mail response management, billing integration, co-browse, chat, "call me now", voice-over IP, and other uses of video streaming
- Customer self-service request processing including updates to billing and shipping profiles
- Real-time field service access to customer account review, schematic review, parts availability and ordering, work-order update, and service parts management

← Web-distributed supply chain management →

To summarize the six models discussed above, none of the models in this category explicitly discuss e-commerce planning. However, they inspect e-commerce from a level that assists in identifying issues that need to be considered at the planning stage.

2.3.2 Models Representing E-commerce Process

The second selection of e-commerce models is models representing e-commerce process. A process model may be described as a model that answers *how* value-creating activities are carried out (Gordijn, Akkermans and vanVliet, 2000). Such models provide insight into methods of conducting e-commerce and help identify possible weaknesses for a specific organization. However, as technology and environment change, the models may also need adaptation to reflect the changes. Three examples of process models are briefly discussed below. It should be noted that the e-commerce models represent two stages in its evolution. The first model presented is specific to EDI (formerly considered to define e-commerce), while the next models depict processes employing the Web.

The first model, the Phases of E-commerce (Figure 4) represented e-commerce as a five-stage process (Clarke, 1993). The model demonstrates that e-commerce technology can be utilized in the pre-contractual, contractual, ordering and logistics, settlement and post-processing phases of business activities. It also demonstrates the interrelationships between those particular activities. The model is reflective of a bricks and mortar manufacturing environment, with e-commerce tools integrated into the process. In making a decision to adopt e-commerce, this model is useful for such organizations in that it provides a structure for technological innovation. To support a bricks and mortar manufacturing environment

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with e-commerce, this model suggests the importance of considering logistics, technology and operations during the planning phase of the process.

FIGURE 4 - PHASES OF ELECTRONIC COMMERCE (ADOPTED FROM CLARKE, 1993)
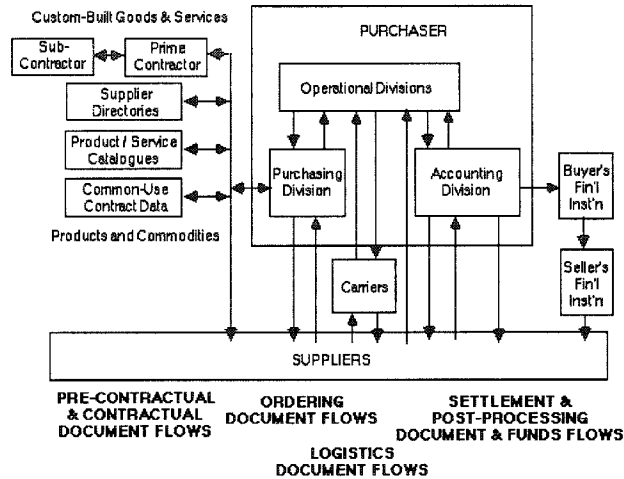
Gordijn et al (2000) presented an e-commerce process model for an Ad Association (Figure 5). This model demonstrates an operation that may be conducted electronically, without a bricks and mortar presence. Again, logistics, technology and operations are of particular importance to the processes represented in this model.

FIGURE 5 - A PROCESS MODEL FOR THE AD ASSOCIATION (ADOPTED FROM GORDIJN ET AL, 2000)

In the final e-commerce process model examined, Lazcano, Alonso, Schuldt and Schuler (2000) demonstrated a virtual process within the individual business environment (Figure 6). This model recognizes the integration of e-commerce technology in materials management from the ordering of the product to the delivery of the finished goods. At the physical level, it reflects the traditional business activities of manufacturing, trading, shipping and distribution. At the virtual level, the model diagrams the electronic flow of data to support the physical manufacturing process. This virtual process model presents a depiction of how virtual tools are incorporated in a specific area of commerce. Models such as this provide a highly conceptual level planning for the particular mode of commerce it represents. It also provides

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some insight into process design. They highlight the importance of technology to integrate with operations and logistics in an e-commerce venture.

FIGURE 6 - VIRTUAL PROCESS AS PART OF BUSINESS PROCESSES (ADAPTED FROM LAZCANO ET AL, 2000)
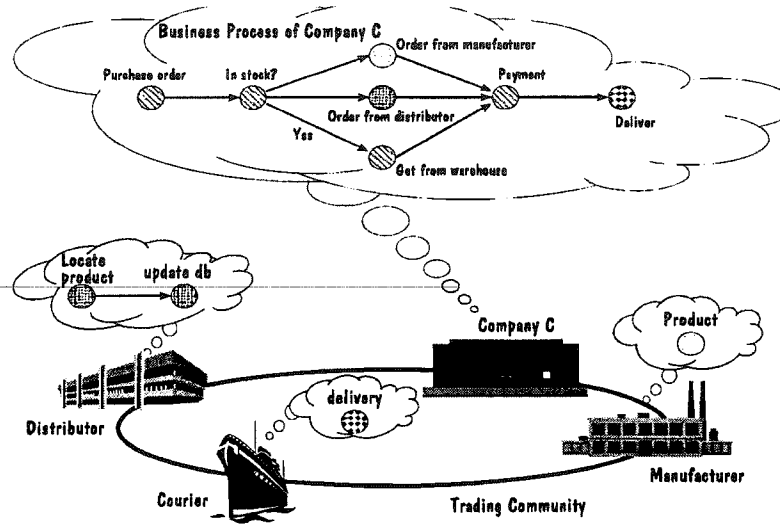
Summarizing the three models considered, it is noted that the e-commerce process models tend to focus on logistics and operations as they integrate with technology, suggesting that those three dimensions play an important role in e-commerce planning.

2.3.3 Models Representing E-commerce Business Models

The final selection of e-commerce models examined is that of e-commerce business models. A number of models have been suggested to describe e-commerce business models (Viehland, 1999; Rappa, 2000). Hoffman, Novak and Chatterjee (1995) advanced six functional types of commercial web sites – online storefront, Internet presence (flat ad, image and information),

content (fee-based, sponsored, searchable database), mall, incentive site and search agent. Viehland (1999) identified three specific business models that rely on interorganisational networks to exist – the virtual retailing model, the distributed storefronts model and the buyer-led pricing model. Rappa (2000) suggested that nine categories of business models exist on the web. They are the brokerage, advertising, infomediary, merchant, manufacturer, affiliate, community, subscription and utility models. As a further example, Hofacker (2000) suggested four categories of Internet marketing – communicating, selling, providing content and providing a network function. Afuah and Tucci (2001) stated that models may vary not only between industries, but also within industries. As such, it is difficult to depend solely on existing e-commerce business models for guidance in developing a business strategy. The models described above are summarized in Table 4.

TABLE 4 - E-COMMERCE BUSINESS MODELS

Source	Model	Description
Hoffman et al, 1995	online storefront model	offer direct sales through an electronic channel
	Internet presence model	flat ad – single page electronic flyers, no links image – appeal is emotional, rather than rational information – provide rational, detailed information
	content model	fee-based – provider supplies and/or pays for content which consumer pays to access sponsored – site sells advertising space to reduce or eliminate fees searchable database – merchants or advertisers pay provider for information placement in searchable database
	mall model	collection of online storefronts
	incentive site model	form of advertising that attracts potential customer to site (pull site)
	search agent model	identify other sites through keyword search
Viehland, 1999	virtual retailing model	offer direct sales through an electronic channel
	distributed storefronts model	link from one virtual retailer to other virtual retailers
	buyer-led pricing model	buyer states selling price and willing seller is located
Rappa, 2000	brokerage model	buyers and sellers brought together to facilitate transactions
	advertising model	provide content and services mixed with advertising messages
	infomediary model	collect information on consumers and sell to other businesses
	merchant model	wholesalers or retailers sell goods through auction or price lists
	manufacturer model	takes advantage of web to reduce distribution channels
	affiliate model	affiliates provide purchase-point click-through to the merchant and receives percentage of revenues from sale
	community model	based on user loyalty to site (sense of community)
	subscription model	user pays for access to site
	utility model	user pays by metered usage of site
Hofacker, 2000	communicating	businesses use Internet to communicate with customers and potential customers
	selling	direct marketing via Internet
	providing content	web site is actual product
	providing a network function	facilitates access to content provided by someone else

For an entity considering an e-commerce venture, the e-commerce business models may provide a possible starting point in the planning process. The organization or individual may select a model to emulate as a template. Or, an organization may consider features of one of the models as a potential method of diversifying or of strengthening its existing business model. The key dimensions of focus within this category are those of strategy and marketing, and thus find support as important dimensions for e-commerce planning.

2.4   E-commerce Models and E-commerce Planning

Given that planning is the first stage in the Systems Development Life Cycle (SDLC), we feel that it is appropriate to use the SDLC as a metaphor for our investigations of the contributions of these models to e-commerce planning. This exercise, which will be described in the following section, will help us develop a model that might better assist practitioners in planning an e-commerce venture. It is also important to recognize key dimensions of e-commerce identified in the existing models. While many of the models examined do not emphasize planning, they do focus on factors that should be addressed at the planning stage. From their identified components, it is possible to build a foundation for the e-commerce planning model.

2.5   Existing Models and the Systems Development Life Cycle

The decision-making process for any system implementation in the organization should be given consideration at both the planning and analysis stages, with no exception to e-commerce ventures. In planning, the goal is to identify and prioritize technologies that will most benefit the organization. The analysis phase studies the current business and information systems, and defines user requirements and priorities for the new system

(Whitten, Bentley and Barlow, 1994). We have examined the models and frameworks discussed in the previous section as they apply to the life cycle stages, and summarized our observations in Table 5.

TABLE 5 - EXISTING MODELS IN E-COMMERCE PLANNING CONTEXT

Model	Comments	Applicable Life Cycle Stage
Models Describing E-commerce		
Choi et al, 1997 (Electronic Commerce Areas)	Assist in locating enterprise within marketplace/ marketspace Help determine focus in relationship to technology	Planning, Analysis
Zwass, 1998 (The Hierarchical Framework of E-commerce)	Help focus attention on important functional components within current e-commerce context	Analysis
Riggins, 1998 (The Electronic Commerce Value Grid)	Aid in determining where Web-based storefronts may improve profitability	Planning, Analysis
Riggins & Rhee, 1998 (Electronic Commerce Domain Matrix)	Classification relating to trading relationships Suggests possible competitive benefits in employing e-commerce solutions	Planning, Analysis
Chan & Swatman, 1999 (Component Model for E-Commerce)	Snapshot for evaluating e-commerce	Analysis
Porter, 2001 (Prominent Applications of the Internet in the Value Chain)	Help identify potential benefits to value chain of Internet	Planning, Analysis
Process Models		
Clarke, 1993 (Phases of Electronic Commerce)	Demonstrates interrelationships between activities in electronic document flows	Analysis, Design
Gordijn et al, 2000 Process Model for the Ad Association	Demonstrates process of an electronic business	Design
Lazcano et al, 2000	Helpful in conceptual design for manufacturing implementation of e-commerce solutions	Design
Business Models		
Hoffman et al, 1995	Starting point to choose e-commerce Provides suggestions for possible diversification or strengthening of existing business model	Analysis
Viehland, 1999	Starting point to choose e-commerce Provides suggestions for possible diversification or strengthening of existing business model	Analysis
Rappa, 2000	Starting point to choose e-commerce Provides suggestions for possible diversification or strengthening of existing business model	Analysis
Hofacker, 2000	Starting point to choose e-commerce Provides suggestions for possible diversification or strengthening of existing business model	Analysis

The examined models tend to be too specialized to support all e-commerce decisions. Most models provide some assistance in analysis and design, but limited direction relative to the

planning stage. Although many of the e-commerce models can be applied to the planning stage, none of the authors discuss them explicitly in the context of "planning". In order to provide decision makers with a valid decision model to determine whether an e-commerce venture is worthwhile, one should extend merits stated in existing models, such as models in Figures 1 to 6 and Tables 1 to 5, to see how these merits could be used in the planning stage. The next section will consider such merits.

2.6   Integrating Existing Models into an E-commerce Planning Model

In this section, the e-commerce models examined above are assembled with a focus on the factors that each model would suggest are important to the e-commerce venture. From the models, seven potential dimensions emerge. These dimensions are strategy, legality, logistics, marketing, operations, security and technology. We recognize strategy as the core of an e-commerce venture, and therefore will give it emphasis here and in the planning model that follows. One dimension, that of finance, is not evident in the models. However, it is difficult to envision an e-commerce venture that excludes finance as an important consideration. In fact, the definition of the planning phase of the SDLC states that it "seeks to identify and prioritize those technologies and applications that will return the most value to the business" (Whitten et al, 1994). This definition alone demonstrates the need to consider finance in a planning model. Therefore, it is included here, albeit without support from the e-commerce models surveyed. Table 6 provides a summary of the e-commerce models as tools to assist in the development of a planning model.

TABLE 6 - - CONTRIBUTIONS OF E-COMMERCE MODELS TO IDENTIFYING DIMENSIONS FOR AN E-COMMERCE PLANNING MODEL

Dimension

Model	Strategy	Finance	Legality	Logistics	Marketing	Operations	Security	Technology
Models Describing E-commerce								
Choi et al (1997)					X	X		X
Zwass (1998)							X	X
Riggins (1998)	X			X	X			X
Riggins & Rhee (1998)	X			X	X			X
Chan & Swatman (1999)			X		X			X
Porter (2001)	X			X	X	X		X
Process Models								
Clarke (1993)				X		X		X
Gordijn et al (2000)				X		X		X
Lazcano et al (2001)				X		X		X
E-commerce Business Models								
Hoffman et al (1995)	X				X			
Viehland (1999)	X				X			
Rappa (2000)	X				X			
Hofacker (2000)	X				X			

2.7 E-commerce Planning Model

At the planning stage, prior to any major commitment of resources, the core focus of strategy and the dimensions of finance, legality, logistics, marketing, operations, security, and technology need to be examined. If there are serious concerns about the deployment of any of the above dimensions, they should be addressed, with more consideration given to the specific deficient dimension. The planning model shown in Figure 7 emphasizes the importance of considering all components in order to realize a successful e-commerce venture. This model is applicable to both new e-commerce ventures or in the adaptation of an existing organization to employ e-commerce methods.

While all of the dimensions examined are necessary to a successful venture, we believe that it is the successful integration of the venture into the organization's strategy that forms the foundation for the success of the venture. Therefore, strategy is recognized as the base or core of this model. We believe that each of the additional seven critical dimensions is imperative to a successful e-commerce venture, and each of these dimensions must be evaluated prior to embarking on an e-commerce venture. If any one dimension is weak or unsupported for a particular venture, the venture either will face difficulties or could fail.

In this model, the dimensions could be conceptualized as seven sectors of a wheel, with the organization's strategy that guides the e-commerce venture at its core. Surrounding the core are the seven critical dimensions: finance, legality, logistics, marketing, operations, security, strategy/policy and technology.

FIGURE 7 - THE E-COMMERCE PLANNING MODEL

Following is a brief overview of the critical dimensions for e-commerce planning. We'll first discuss issues related to the strategy. For each of the seven dimensions, accompanying

examples are presented. They help clarify the concepts and suggest issues that warrant management's attention. However, the examples are not all-encompassing. As time progresses and new forms of e-commerce emerge, current issues will be largely resolved, and new issues within each dimension will arise. Nevertheless, strategy will always be the foundation.

2.7.1 Strategy

At the core of the successful e-commerce venture lies the organization's strategy. Examination of organizational strategy is necessary prior to embarking on a new e-commerce venture. It is important to determine the strategic direction of the organization, management's attitudes towards e-commerce initiatives, and the potential of a learning environment. A number of issues arising when considering the impacts of strategy on practice are discussed below.

It is essential to consider both top management's statements and assertions, and to observe what it actually does (Burgelman, Maidique and Wheelwright, 2001). There is no advantage to implementing a new venture based on a strategy that exists only on paper – the focus should be on the strategies in practice.

Once strategies are identified, it is important to ensure the adoption of an e-commerce venture that is compatible with the existing strategies. It was suggested by Porter (2001) that problems arise when an organization does not maintain a consistent strategy for both its traditional and e-commerce operations. Therefore, it is advisable for an existing organization to develop an e-commerce strategy that complements its existing strategy.

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The active involvement of leadership is advantageous to the e-commerce venture. Plant (2000) found that all successful internet e-commerce ventures that he studied had a champion who was either a senior executive or in a position to influence a senior executive of the organization. Rogers (1983) stated that the most rapid adoption of innovation resulted from authority decisions (if the authorities were innovative). These observations underscore the benefits of active support from the organization's power base in the successful implementation of an innovative new venture. A strategy that reinforces senior management support of the venture is beneficial.

Strategic support for organizational learning also has a positive impact on the venture. Wastell (1999) suggested that the development of IS projects is inherently stressful and anti-learning defenses are triggered. Consequently, learning is disrupted. In the organizational setting, such reactions may impair the project, in our case the e-commerce venture. Plant (2000) identified organizational learning as a key factor in e-commerce success. He stated that organizational learning must have a focus and that the focus must be driven from the firm's strategic objectives. This reinforces the premise that corporate strategy compatible with the innovation will compliment a successful e-commerce venture.

For an e-commerce venture to be successful, the organization must be committed to the change at the strategic level. If the organization is unwilling to actively promote the suggested e-commerce venture, the venture will experience problems. If it is determined that support does not exist for the venture at the planning stage, then it is advisable, at that time, to solicit the necessary strategic support.

2.7.2 Finance

When considering the impact of finance on the e-commerce venture, two issues arise: the ability of the organization to arrange sufficient funding to support the venture and the ability of the venture to provide an adequate return on investment.

Common sense would suggest that sufficient funding for a new e-commerce venture would be a critical factor in its eventual success. In fact, many now-defunct Web ventures claimed that inadequate funding resulted in their failures (Upside Today, 2001). Two possible reasons for the shortage of funds are unanticipated expenses and insufficient external financing. Examining funding requirements and sources at the planning stage of the venture could help to identify and avoid potential financial problems.

Another possible financial explanation for the failures is that the venture was not economically sound. Rather than inadequate funding causing the failures, the ventures may not have been appropriate for the Internet (or any other form of e-commerce) and therefore unable to ever provide positive returns. This possibility may not have been adequately considered. However, it is important that it be considered, initially, in the planning stage.

At the height of the dotcom boom, it seemed that any creative concept could find financial support. This is no longer the norm. Therefore, availability of sufficient funding and the promise of positive returns are now factors that warrant particularly careful consideration at the planning stage.

2.7.3 Legal Issues

The introduction of the World Wide Web to commercial activities has created legal questions that were irrelevant in traditional commerce. Taxation (Schneider and Perry, 2000), legal responsibility for content and collection of data (Brinson, Dara-Abrams, Dara-Abrams, Masek, McDunn and White, 2001) and jurisdiction for prosecution of infractions (Swire, 1998; Johnson and Post, 1996) are some of the legal issues encountered in e-commerce. To avoid future issues, an organization needs to consider and address potential legal problems prior to entering the venture.

Electronic commerce has the potential to open the marketplace to the entire world. However, what is legally acceptable in one area or country may be illegal in another (Hofacker, 2000). Therefore, an organization needs to examine the legality of its products, services and practices in all areas where it plans to conduct business and to ensure compliance when planning the venture.

Additionally, there are legal implications to electronic requests for personal information. Different jurisdictions have different legislation concerning collection, storage and use of information (Banisar and Davies, 1999). Again, the planning stage is the appropriate time to consider this issue.

The organization needs to be aware of pertinent legislation prior to initiating the venture. It is important, at the outset, to resolve or make adjustments to comply with legal requirements in any jurisdiction impacting the e-commerce venture.

2.7.4 Logistics

Logistics is defined as that part of the supply chain process that plans, implements, and controls the efficient, effective flow and storage of goods, services, and related information from the point of origin to the point of consumption in order to meet customers' requirements (Council of Logistics Management, 1993). Within the context of our model, we further expand the definition of logistics to include digital logistics, which is defined as the efficient and effective flow of digital communications and products across telecommunications networks.

Traditional logistical issues may be amplified by an e-commerce venture. Adopting e-commerce may greatly expand the marketplace. The organization needs to be concerned with its ability to deliver its product to potential customers. It may be necessary to locate warehouses throughout the world to provide competitive delivery of goods. Conversely, steps may need to be taken to restrict sales of the product in foreign countries in order to avoid logistical problems.

Additionally, digital logistics may impact the organization's ability to reach customers. Using the example of the Web, a venture will be unsuccessful if its market does not have reliable access to the Internet. While computers are replaced every two to three years in wealthier

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countries, the computers used in poorer countries are older and ill-equipped to handle the modern Internet (Murillo, 2001). Hence, consideration may need to be given to the organization's ability to reach its potential customers by the technology the organization wishes to utilize. This consideration is of equal importance for both traditional and digital products. Without the necessary technological infrastructure, there can be no e-commerce conducted.

When planning an e-commerce venture, both digital and traditional logistics should be considered. Being able to successfully communicate through e-commerce channels, and to competitively deliver the product to customers, will always be a relevant issue.

2.7.5 Marketing

The scope of marketing issues has broadened in the e-commerce environment. Issues concerning the marketing of the products via a new medium such as the Internet will arise. Therefore, at the planning stage, the organization should consider issues that are specific to the proposed medium.

An example of an issue that may be addressed through marketing is that of trust. Researchers have noted the importance of establishing trust between the parties of e-commerce transactions (Head, Yuan and Archer, 2001). Therefore, it would be beneficial to consider marketing strategies designed to promote the confidence and trust of the consumer at the planning stage.

As well, many marketing issues are related to the global nature of electronic marketing. It may occur that a large portion of the desired market is fluent in a language other than that of the selling organization (McManus, Ryker and Cox, 2001). Therefore, some of the target consumers may require translation of the message. Lai, Humphreys and Sculli (2001) suggested that the faceless transactions of e-commerce may conflict with Chinese cultural values. When attempting to attract this market with e-commerce, that issue will need to be addressed. Also, care needs to be taken to ensure that a neutral message (verbal or non-verbal) in one country is not, in fact, offensive in another country (Hofacker, 2000).

Consideration should be given to the traits of the typical target consumer. If many customers are uncomfortable with the particular technology, efforts may need to be taken to reduce concerns or it may be necessary to postpone the venture until customers are comfortable with the particular technology. Additionally, Citrin, Sprott, Silverman and Stern (2000) suggested that consumer innovativeness will help identify potential customers. They found domain-specific innovativeness to have a direct influence on a consumer's adoption of Internet shopping, while open-processing innovativeness had no significant effect on the adoption of the Internet for shopping. Considering such traits in target consumers will help determine the potential for future success, or problems, in the venture.

In addition to traditional marketing issues such as building brand awareness and customer support, care also needs to be taken to consider marketing issues that relate specifically to e-commerce ventures. Anticipating marketing problems at the planning stage may help avoid larger problems in the operation of the e-commerce venture.

2.7.6 Operations

The means of conducting the venture are important to its eventual success. Two examples of operating concerns that apply to most e-commerce ventures are human resources planning and operational feasibility.

When considering human resources planning, it is necessary to ensure that sufficient skilled staff is available to operate the venture. If skilled staff is available, strategies need to be considered to retain the staff. Conversely, consideration may be given to either outsourcing some of the operations or training existing staff to perform the new tasks. A technological innovation may reduce the number of staff required for an existing organization. Therefore, the venture could also result in the need to downsize the operation.

An example of an operational feasibility issue is the organization's ability to accept payment for transactions. For small transactions, the issue of micropayments may arise. To date, there have been no broadly accepted means to process small transactions (Schneider and Perry, 2000). Electronic cash implies anonymity, which does not currently provide the means to ensure that the transaction is legitimate (Schneider and Perry, 2000). In addition, the expanded marketplace of e-commerce may make the ability to accept any currency of payment an issue. Therefore, an organization entering a venture may also need to consider issues such as currency conversion.

Operational issues will often be considered along with logistics issues. In the section describing logistics, the example of locating warehouses throughout the world to meet delivery

demands is provided. Operational issues concerning the functioning of the warehouses would also emerge in this scenario.

2.7.7 Security

Lack of trust in the security of electronic communication, in general, is identified as an e-commerce obstacle (Gisler, Stanoevska-Slabeva and Greunz, 2000; Salisbury, Pearson, Pearson and Miller, 2001). Due to the potential negative implications of weak security controls, consideration of security issues is important prior to initiating a new venture.

Security threats arise either from attacks against information in transit or attacks against the site storing information (Boncella, 2000). Therefore, both physical (tangible protection devices) and logical (non-physical protection devices) security measures should be considered (Schneider and Perry, 2000). Decisions must be made as to the level of risk of security breaches that the organization is willing to assume.

While it is presently impossible to protect against all potential security threats, efforts to minimize problems should be taken, for the protection of both the business and its customers. Any perceived security weaknesses may have a permanent negative impact on the venture and should, therefore, be addressed very early in the venture. Security issues are often tied to legal issues, and are therefore closely considered with that dimension.

2.7.8 Technology

Technological concerns relevant to the new e-commerce venture may be divided into two groups – technological capabilities of the organization and technological capabilities of the consumer. Both groups must be able to conduct the transactions and to obtain sufficient information with their existing hardware and software. Lack of such hardware or software indicates a major roadblock to the e-commerce venture.

State of the art technology is of little benefit to the organization if the consumers that it wishes to conduct business with have aging equipment. For example, in the present Web environment, download time is recognized as one of the technological factors impeding B2C e-commerce (Rose, Khoo and Straub, 1999). So, when planning a new Web venture, it would be wise for the organization to identify download time as a potential problem, and to avoid design decisions that would increase this download time.

Existing technology is limited in its ability to replicate the five senses (Rose, Khoo and Straub, 1999). For example, it is presently difficult to represent fabric textures on the Web. Therefore, consideration should be given to the ability of the technology to properly represent the organization's product.

Technological capabilities will also impact the operational feasibility of an e-commerce venture. This dimension, therefore, overlaps with the operations dimension. Because the conduct of e-commerce relies so heavily on the state of technology, all potential technological problems need to be addressed while planning the e-commerce venture.

The potential management issues identified above are summarized in Table 7.

TABLE 7 - POTENTIAL MANAGEMENT ISSUES IN E-COMMERCE PLANNING

Dimension	Issue
Strategy	1. Important to accurately determine the strategic direction of the organization 2. Ensure that adoption of e-commerce venture is compatible with existing strategies 3. Important to secure active involvement of organization's leadership 4. Need strategic support for organizational learning
Finance	1. Determine funding required to support the venture to self-sufficiency 2. Ensure that ample funding is available 3. Determine if venture is likely to provide positive returns
Legality	1. Be aware of taxation requirements with applicable jurisdictions 2. Determine that venture is legal in all regions targeted by venture 3. Be cognizant of legal implications of requests for personal information in varying jurisdictions
Logistics	1. Determine if organization is able to deliver product to potential customers 2. Determine if necessary technological infrastructure is in place to reach potential customers
Marketing	1. Develop strategies to establish trust between transacting parties 2. Provide linguistic translations where necessary 3. Ensure that the message being delivered is neutral in all target cultures 4. Develop strategies to overcome customer concerns with technology issues 5. Consider target consumers' innovation traits
Operations	1. Determine if skilled staff is available to operate venture 2. Develop policies to train or retain staff 3. Consider potential downsizing implications of new venture 4. Determine organization's ability to accept payment for transactions
Security	1. Minimize potential for attacks against information in transit 2. Minimize potential for attacks against site of storage of information
Technology	1. Consider download time in development of site 2. Recognize technological limitations in replicating the five senses

2.8 An Example Incorporating the E-commerce Planning Model

When planning for an e-commerce venture, the planner needs to examine, address and oversee the resolution of potential problems. In order to further demonstrate the usefulness of this model in the planning process, an example is provided. In the following example, the need for planning using each dimension is discussed in the context of targeting customers.

Strategy – The organization identifies an e-commerce venture as a potential strategy for attracting and maintaining customers.

Finance – There is a need to determine the potential for improved revenues through the venture. Additionally, the availability of necessary funding must be considered.

Legality – Is the product legally acceptable for all customers that could be reached via the Internet? Would the organization need to collect taxes in different jurisdictions?

Logistics – There would be a need to consider potential delivery problems with an expanded customer base. If the problems are insurmountable, the venture should be reconsidered.

Marketing – The ability of the website to attract potential customers should be considered. Does the typical potential customer have consistent access to the Internet? Additionally, there is the need to consider the means of making potential customers aware of the venture.

Operations – The ability to provide adequate customer services should be considered. Can the organization provide sufficient trained staff to meet demand? Is the product one that would require small payments? If so, how will the organization collect accounts?

Security – Does the organization have adequate security in place to protect the venture and its customers? What policies are needed to reassure customers that they are protected from security breaches?

Technology – Is the technology available to adequately represent the product? Does the target customer own the technology to use the website?

The above scenario demonstrates how planners who are focusing on attracting more customers could use the e-commerce planning model. Each dimension is considered at the outset, prior to committing resources to the venture. If any of the dimensions are questionable, the organization would be able to address the deficiencies at this stage.

2.9 Conclusions

In this paper, we have developed a model that will help researchers and practitioners focus on the important aspects of e-commerce planning. This model represents a synthesis of the diverse concerns raised in existing e-commerce research. We have discussed the critical dimensions that should be considered when planning a new e-commerce venture. The dimensions are finance, legal issues, logistics, marketing, operations, psychology, security and technology, with strategy as the core. The overlapping nature of these dimensions makes them all integral to a successful venture.

A theoretical model is most beneficial when it has practical applications. In this paper, we present some general management issues to illustrate the utility of the e-commerce planning model. The dimensions of the model are of importance to both a new e-commerce enterprise and to an existing organization adopting e-commerce technology. Additionally, while these dimensions are provided as a means to ensure a successful e-commerce endeavor, they may also assist in identifying the causes of e-commerce failures.

E-commerce planning is at its early research stage. The model presented and related managerial issues are certainly not comprehensive. Measurement and assessment studies are needed. This topic will benefit from more theoretical work and experimental studies.

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3 APPLICABILITY OF A STRATEGY-BASED E-COMMERCE PLANNING MODEL FOR CANADIAN ORGANIZATIONS: AN EXPLORATORY STUDY

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3.1 Introduction

It has become apparent in the years since the bursting of the e-commerce bubble that the optimistic predictions about the e-business economy were not realized. First mover advantage alone did not ensure success. "Exciting new business models" for the "new economy" did not guarantee a profitable e-commerce venture. Explanations such as a lack of consideration of customer needs and faulty business models have been offered for dotcom failures (Kalakota and Robinson, 2002). Kao and Decou (2003) suggested that lack of attention to planning in the development of e-commerce ventures contributed to the failures. Subsequently, they developed a strategy-based e-commerce planning model intended to provide guidance for organizations planning an e-commerce venture.

This paper describes research undertaken to explore and better understand the potential value in the e-commerce planning model developed by Kao and Decou (2003). They examined a number of e-commerce models while developing their model. Individual models contained some of the dimensions found in their strategy-based e-commerce planning model; however, none of these models contained all of the dimensions identified in their planning model. Therefore, they were unable to extend any empirical conclusions from other research to their model, which led to further research opportunities around their model.

This research was conducted as the first step in studying their strategy-based e-commerce planning model. By drawing from the potential management issues in e-commerce planning (Figure 14) and the example incorporating the e-commerce planning model, found in Kao and Decou (2003), a survey was developed to investigate if the model was relevant to a sample of Canadian e-commerce practitioners. The observations of this inquiry into the applicability of this model are reported, as well as conclusions and suggestions for further research in this area.

3.2   Theoretical Framework

This section describes the e-commerce planning model developed by Kao and Decou (2003). The authors considered discussions about e-commerce planning in disciplines such as finance, law, marketing and operations in developing a model that was a synthesis of both existing e-commerce models and research in related disciplines. The purpose was to provide practitioners and researchers with an overview of the critical success factors that could affect the startup of a new e-commerce venture and that would be relevant to existing and emerging e-commerce operations.

Many incompatible definitions of electronic commerce existed. Because researchers were unable to agree on a definition for e-commerce (Mesenbourg, 1999; Riggins & Rhee, 1998; Swatman, 1996; Wilkins et al., 2000), Kao and Decou (2003) adopted the following definition of e-commerce since it was adaptable to the rapidly-evolving e-commerce phenomenom. This definition, they suggested, supported any form or degree of e-commerce adoption.

Electronic Commerce involves the undertaking of normal commercial, government, or personal activities by means of computers and telecommunications networks; and includes a wide variety of activities involving the exchange of information, data or value-based exchanges between two or more parties (Chan & Swatman, 1999).

In examining e-commerce models, it was observed that each model tended to represent a specific view of e-commerce. Three general categories of e-commerce models were suggested. The three categories were models describing e-commerce, models depicting the e-commerce process, and models representing e-commerce business models. These categories reflected e-commerce in decreasing levels of abstraction, with the models describing e-commerce being the most abstract. While few existing e-commerce models dealt directly with the planning issues of e-commerce, many of the models that they considered had implications for the e-commerce planning process.

The models were also classified relative to how they might fit into the processes of the Systems Development Life Cycle (SDLC). The specific models were too specialized to support all e-commerce decisions, yet provided some assistance in the analysis and design phases, and limited direction for the planning phase. Although many of the e-commerce models had implications for the planning phase, none of their creators discussed them explicitly in the context of "planning". Kao and Decou (2003) believed that this demonstrated the need for a model to specifically assist in e-commerce planning.

The identified e-commerce models were reviewed for factors that were important to planning an e-commerce venture. Table 8 provides a summary of the examined e-commerce models and their contribution to a strategy-based e-commerce planning model. From these models, seven potential dimensions emerged. These dimensions were finance, legality,

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logistics, marketing, operations, security and technology. Because organizational strategy was considered to be central to an e-commerce venture's success, it was emphasized in the planning model. One dimension, that of finance, was not evident in the models. However, it was recognized that finance was an important consideration in planning an e-commerce venture. In fact, the definition of the planning phase of the SDLC stated that it "seeks to identify and prioritize those technologies and applications that will return the most value to the business" (Whitten et al, 1994). This definition revealed the importance of including finance in the planning model. Their strategy-based e-commerce planning model emerged from these considerations.

TABLE 8 - CONTRIBUTIONS OF E-COMMERCE MODELS TO IDENTIFYING DIMENSIONS FOR AN E-COMMERCE PLANNING MODEL (ADOPTED FROM KAO & DECOU, 2003)

Dimension								
Model	Strategy	Finance	Legality	Logistics	Marketing	Operations	Security	Technology
Models Describing E-commerce								
Choi et al (1997)					X	X		X
Zwass (1998)							X	X
Riggins (1998)	X			X	X			X
Riggins & Rhee (1998)	X			X	X			X
Chan & Swatman (1999)			X		X			X
Porter (2001)	X			X	X	X		X
Process Models								
Clarke (1993)				X		X		X
Gordijn et al (2000)				X		X		X
Lazcano et al (2001)				X		X		X
E-commerce Business Models								
Hoffman et al (1995)	X				X			
Viehland (1999)	X				X			
Rappa (2000)	X				X			
Hofacker (2000)	X				X			

In their strategy-based e-commerce planning model, the dimensions were conceptualized as seven sectors of a wheel, with the organization's strategy at its core. Surrounding the core

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were the seven dimensions of finance, legality, logistics, marketing, operations, security, and

technology (Figure 8).

FIGURE 8 - THE STRATEGY-BASED E-COMMERCE PLANNING MODEL
(ADOPTED FROM KAO & DECOU, 2003)

This strategy-based e-commerce planning model was developed to help researchers and

practitioners focus on the important aspects of e-commerce planning. It represented a

synthesis of the diverse issues raised in existing e-commerce research. Kao and Decou (2003)

believed that serious considerations about any of their model dimensions should be addressed

prior to committing resources to an e-commerce venture.

They also suggested that further research, such as in measurement and assessment studies, and

experimental studies, was needed on this topic. This paper represents a first step in this

research. It describes the research undertaken to explore the relevance their strategy-based e-

commerce planning model for practitioners.

3.3 Methodology

A Web-based questionnaire (Appendix 2) was used to survey the opinions of e-commerce practitioners concerning the dimensions of the planning model developed by Kao and Decou (2003). The Web was chosen for delivery of the survey to provide a faster response than could be expected with traditional mail surveys (McCullough, 1998; Cobanoglu, Warde & Moreo, 2001), eliminate the possibility of interviewer bias (Sheehan & Hoy, 1999) and minimize the costs of the survey (McCullough, 1998). Another factor that was considered was the possible response rate from a Web-based survey. Dillman (2000) reported a response rate similar to that of traditional mail surveys for e-mail surveys and Cobanoglu et al (2001) achieved a 42 percent response rate on a web-bawd survey. All of these factors made the Web-based survey appear to be the ideal method for delivery of the questionnaire. A negative aspect of this delivery method was the possibility that only individuals who were comfortable with the Web technology would complete the survey. This problem would not impact the response rate for this survey because all potential respondents were actively involved in the development of their organizations' e-commerce venture and should be comfortable with a Web-based format.

The website for the survey was created using LotusNotes/Domino Designer Version 6.0. The sampling process began with an e-mail letter (Appendix 3) informing the respondents of the survey and containing a hyperlink to the webpage of the survey consent form (Appendix 4). All respondents who agreed with the content of the consent form gained access to the survey by selecting the "I agree" button at the bottom of the consent form. The questionnaire was constructed using a form template. To complete the survey (Appendix 2), respondents selected the "submit" button at the bottom of the questionnaire. When respondents clicked

on the submit button, their responses on the Web form were stored as one discrete record in a LotusNotes database. All records were exported to a tab-delimited file in Excel and then imported into SPSS for analysis.

Because the objective of the survey was to explore the strategy-based e-commerce planning model developed by Kao and Decou (2003), the statements presented in the survey related the dimensions of the model to e-commerce planning practice. There were three sections in the survey, containing 43 questions and an area for respondents to add further comments about the experience of starting their online venture.

Part 1 of the survey contained 18 statements about starting an e-commerce venture. Respondents were asked to recall the events leading up to putting their venture online. They were then asked to select responses based on what they believed prior to starting the venture. Because any planning, formal or informal, would have occurred at this point in the adoption of the e-commerce venture, responses should have reflected how these dimensions played a role in any planning that may have taken place. The responses were recorded on a five-point Likert scale broken down as follows: 1 – strongly agree, 2 – agree, 3 – neutral, 4 – disagree, 5 – strongly disagree. Some of the statements had a sixth response of "Not Applicable" to accommodate statements that did not apply to all forms of e-commerce using the Internet.

Part 2 consisted of 18 statements that were paired with the statements of Part 1. These statements explored respondents' opinions based on the lessons they had learned in starting their e-commerce venture. They were asked to indicate what they now believed should be considered prior to starting an e-commerce venture. This set of questions was intended to

help understand how the opinions of the respondents, in relation to the statements, might change after experiencing an e-commerce startup. The responses were also recorded on a Likert scale, as discussed for Part 1 of the survey.

Part 3 contained questions about the organizations of the individuals responding to the survey. These data were collected to help describe the organizations and to explore whether the answers to the first two parts of the survey were impacted by the following variables: the type of e-commerce venture (e.g., business-to-business, etc.), the e-business model (e.g., flat ad or online storefront), the length of time online, the length of time the organization was in operation, the evolution of the organization (e.g., bricks-and-mortar first or online only) and the industrial sectors in which the organizations could be placed. Within Part 3, space was also provided for respondents to include comments and opinions. Responses to Part 3 were recorded with check boxes, radio buttons and text boxes.

Although the definition of e-commerce used by Kao and Decou (2003) to develop their model was broad, this study focused solely on e-commerce involving the Internet. The e-commerce organizations approached either existed only online or also had a bricks-and-mortar presence. Therefore, such e-commerce practices as accepting debit cards at a bricks-and-mortar store were not considered in this study. Although e-commerce is a global phenomenon, the potential existed for factors such as government legislation to impact practice. Consequently, only organizations that had physical offices located in Canada were surveyed in order to minimize the effects of geographic diversity.

The study examined a number of potential implications for interpreting the strategy-based e-commerce planning model. If practitioners would have benefited by using the model to plan their e-commerce venture, there should have been a significant increase in support for the statements of Part 2 as compared to the paired statements of Part 1. If organizations operating with different business models experienced different startup issues, they might react to the statements of Parts 1 and 2 with different responses. If organizations that had existed as bricks-and-mortar prior to starting an e-commerce venture were able to transfer the bricks-and-mortar startup experiences to the new venture, they might show different responses to the statements of Parts 1 and 2. If the length of time these organizations had existed as bricks-and-mortar entities affected lessons learned, that could impact responses. If different industry sectors experienced different concerns when starting an e-commerce venture, discrete sectors could demonstrate different responses to Parts 1 and 2.

A pretest was conducted to test both the survey and its Web-based delivery. Participants in the pretest consisted of five business faculty members and a practitioner. Based on feedback from the pretest, the survey was modified so that additional space was allotted for comments and restrictions were placed on the allowable data for Part 3 so inappropriate data could not be entered. Also, it was determined that one of the responses in Part 1 was not being recorded in the database. This problem was corrected after the pretest.

Organizations approached for the survey were drawn from two sources, a database belonging to a Canadian university and the 2003 Canadian Trade Index. Both sources consisted of potential contacts that might provide insights into the applicability of the model to e-

commerce planning from a cross-section of Canadian organizations. Using two sources increased the sample size and helped to increase the number of responses to the survey.

Fifty surveys were e-mailed for a pilot study. Four completed surveys were returned, giving a response rate of eight percent. Based on the response to this e-mailing, the response rate for the survey was estimated at between five and ten percent. With that expected response rate, the e-mailing should have provided between 300 and 600 responses. The survey was distributed to all Canadian organizations listed on the database from the university and all organizations listed in the 2003 Canadian Trade Index that listed both an e-mail address and website URL.

3.4 Analysis

Data were described and analyzed using several methods. Measures of central tendency consisted of median and mode determination for Parts 1 and 2 of the survey. The Wilcoxon signed ranks test (hereafter referred to as the Wilcoxon test) compared the paired statements of Parts 1 and 2. Then, discrete responses to the questions of Part 3 were selected and Wilcoxon tests were again run on the pairs of Parts 1 and 2 using the filtered data. Since the data collected in Parts 1 and 2 of the survey were ordinal, nonparametric tests were performed. The Wilcoxon test was employed because of the need to explore associations within the paired data. All quantitative data was analyzed using SPSS software. Qualitative data was themed using the dimensions of the strategy-based e-commerce planning model.

The survey instrument was e-mailed to 978 practitioners on the database provided by the university and 4884 practitioners listed in the 2003 Canadian Trade Index. Of that number, 111 of the university database addresses were undeliverable and 1955 of the 2003 Canadian Trade Index addresses were undeliverable. Consequently, 3816 surveys were believed to have reached target practitioners. Of that number, 81 responses were received, suggesting a response rate of 2.1 percent. An undeterminable number of e-mails were believed to have been absorbed by spam-blocking. Consequently, the true response rate could not be determined.

3.4.1 Quantitative Analysis

Description of Respondents' Organizations

Classifications for the organizations were drawn from the Strategis Website list of sectors in the Canadian Economy (Industry Canada, 2004). The seven sectors chosen from the list were selected following discussions with other e-commerce researchers. These seven sectors were believed to include a large portion of the Canadian e-commerce population. Forty-two (42) percent of the survey respondents represented organizations involved in manufacturing, 10 percent represented retail organizations, 7 percent represented wholesale trade organizations, 5 percent represented finance and insurance organizations, 7 percent represented information organizations, 1 percent represented educational organizations and the remainder represented other industry classifications (Figure 9). Fifteen (15) percent of the respondents were operating solely online, with 85 percent operating both bricks-and-mortar and online (clicks-and-mortar) organizations. Of the clicks-and-mortar organizations, 90 percent were originally operating as bricks-and-mortar entities, while 5 percent began as online organizations and

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moved to clicks-and-mortar. The remaining five percent began as clicks-and-mortar organizations.

Measures of Central Tendency

Each statement in Parts 1 and 2 of the survey was analyzed for median and mode as measures of central tendency (Table 9). With one exception, the values for the medians and modes were either agree (recorded in the database as 2 on Likert scale) or strongly agree (recorded in the database as 1 on Likert scale) for the statements in both Parts 1 and 2. The median value of the statement "You provided extensive staff training, i.e., more than 10 hrs per employee" found in Part 1 was neutral (recorded in the database as 3 on Likert scale).

FIGURE 9 - RESPONDENT ORGANIZATION CLASSIFICATION
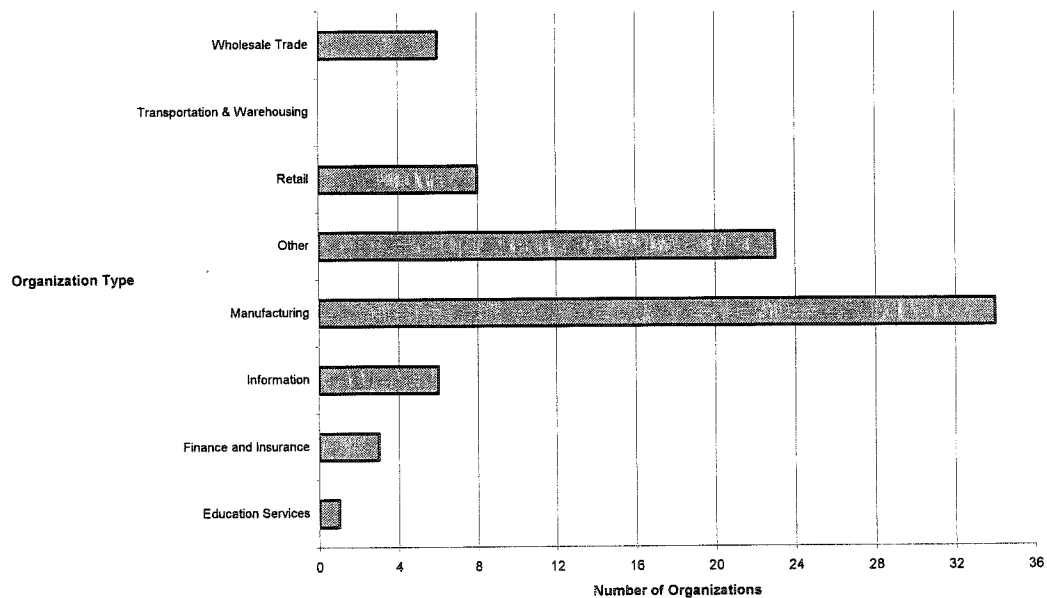
The results of these tests indicated that respondents considered issues that appeared in each dimension of the strategy-based e-commerce planning model to be important in planning a

new e-commerce venture. This observation was consistent with Kao's and Decou's proposition.

TABLE 9 - MEASURES OF CENTRAL TENDENCY - PARTS 1 AND 2

Part 1 – Respondents stated that, while initiating the e-commerce venture:

Statement	Dimension	Median*	Mode*
You realized how much money it would take to start the venture.	Finance	2	2
You understood the costs of continuing to operate the online business.	Finance	2	2
You considered potential legal concerns relating to electronic commerce.	Legality	2	2
You considered how regional sales tax laws might impact transactions to collect monies for your e-product(s).	Legality	2	2
You considered how you would deliver your product(s) to customers.	Logistics	2	2
You considered available supplier delivery arrangements.	Logistics	2	2
You considered warehousing arrangements for your product(s).	Logistics	2	2
You considered the cultural challenges in e-marketing your product throughout the world.	Marketing	2	2
You examined whether your product could be represented using Web technology.	Marketing	2	2
You considered whether your site should be developed to accommodate target users with slow speed Internet access.	Marketing	2	2
You considered whether the technology available on the Internet, e.g., shopping cart technology, was adequate to collect monies for your product(s).	Operations	2	2
You hired adequate technical staff to maintain your e-commerce related hardware and software.	Operations	2	2
You considered potential changes to responsibilities of existing staff that are needed to support e-commerce.	Operations	2	2
You provided extensive staff training, i.e., more than 10 hrs per employee.	Operations	3	2
You had the full support of upper management while developing the e-commerce business.	Strategy	2	2
You considered online security issues, e.g., fraud, hacking.	Security	2	2
You considered physical security issues, e.g., damage to equipment, system backup and storage.	Security	2	2
You were aware of potential technical problems, e.g., system capacity limitations.	Technology	2	2

Having implemented an e-commerce venture, respondents now believe:

Statement	Dimension	Median*	Mode*
It is important to understand how much money it will take to start the venture.	Finance	1	1
It is important to understand the costs of continuing to operate the online business.	Finance	1	1
It is important to consider potential legal issues relating to electronic commerce.	Legality	2	2
It is important to consider how regional sales tax laws might impact transactions to collect monies for e-products.	Legality	2	2
It is important to consider how you will deliver your product(s) to customers.	Logistics	2	2
It is important to consider available supplier delivery arrangements.	Logistics	2	2
It is important to consider warehousing arrangements for your product(s).	Logistics	2	2
It is important to consider the cultural challenges in e-marketing a product throughout the world.	Marketing	2	2
It is important to examine whether a product can be represented using Web technology.	Marketing	2	2
It is important to consider whether a site should be developed to accommodate target users with slow speed Internet access.	Marketing	2	2
It is important to consider whether the technology available on the Internet, e.g., shopping cart technology, is adequate to collect monies for any product.	Operations	2	2
It is important to hire adequate technical staff to maintain e-commerce related hardware and software.	Operations	2	2
It is important to consider potential changes to responsibilities of existing staff that are needed to support e-commerce.	Operations	1	1
It is important to provide extensive staff training, i.e., more than 10 hrs per employee.	Operations	1	1
It is important to have the full support of upper management while developing an e-commerce business.	Strategy	2	2
It is important to consider online security issues, e.g., fraud, hacking.	Security	2	2
It is important to consider physical security, issues, e.g., damage to equipment, system backup and storage.	Security	1	1
It is important to be aware of potential technical problems, e.g., system capacity limitations.	Technology	1	1

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Paired Test – Wilcoxon Ranked Signs Test

The Wilcoxon test was conducted on the paired statements of Parts 1 and 2 to determine if the responses to the statements of Part 1 of the survey were different to those of Part 2. They were repeated by selecting specific variables collected in Part 3 of the data and filtered to isolate each of the variables. Results of all Wilcoxon tests are reported in Figure 19. While the significance levels of the tests were determined using a two-tailed test, the test results indicated that the statements of Part 2 were more strongly supported than the statements of Part 1. Therefore, all significant results contribute to supporting the suggestion that the strategy-based e-commerce planning model is useful for e-commerce planning.

Wilcoxon tests were first conducted using the entire data set, then conducted on data isolated for each business type recorded, each business model recorded, various lengths of time online, the evolution of the organization and each industry sector recorded. The data for some variables were insufficient for SPSS to perform an analysis. All other data were analyzed, although there were very small samples available for some of the variables. All tests that produced significant results were reported by displaying the sample size of that test in the corresponding cell in Table 10. Empty cells represent tests that produced non-significant results. A preliminary examination of Table 10 showed that significant results for statement pairs occurred fairly consistently across the board when the sample size for the variable being tested was larger than 20.

All Respondents

The first Wilcoxon test was conducted using all 81 survey responses. With three exceptions, significant results were found. The three statement pairs that did not show significant results

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related to the acquisition of products, the delivery of products and the need to accommodate users with slower Internet access. All of the dimensions in the planning model were represented by statement pairs that were significant.

Business Types

Respondents were asked to classify their organizations using the business types of business-to-business, business-to-consumer, business-to-government, government-to-business and government-to-consumer. Respondents were asked to select as many types as applied to their organization. Sixty-nine (69) respondents indicated that their organizations conducted business-to-business e-commerce, 31 respondents indicated that their organizations conducted business-to-consumer e-commerce and 17 respondents indicated that their organizations conducted business-to-government e-commerce. There were insufficient responses representing government-to-business or government-to-consumer e-commerce for analysis. The tests conducted on data selected for the business-to-business and business-to-consumer variables returned significant results for most of the statement pairs. They did not return significant results for the statement pairs concerning acquisition, delivery of products, warehousing arrangements, or consideration for the access speed of target users in website development. Additionally, the test conducted on data selected for the business-to-consumer variable did not return significant results for the statement pairs concerning e-marketing to diverse cultures and representing the product on the Web. The test conducted on data selected for the business-to-business variable returned significant results in all model dimensions with the exception of the logistics dimension. The test conducted on data selected for the business-to-consumer variable returned significant results in all model dimensions except logistics and marketing. The test conducted on data selected for the business-to-

government variable returned significant results in the model dimensions of finance, security, and technology. All three tests returned significant results for the statement pairs representing strategy.

E-business Model

Respondents were asked to describe their e-business model. Because an organization could use more than one e-business model, respondents were allowed to select as many choices as applied. Thirty-one (31) respondents selected the online storefront, 31 respondents selected the information provider, 32 respondents selected the flat ad, 8 respondents selected the search agent, 10 respondents selected the intermediary, 12 respondents selected the content provider and 5 respondents selected the online mall e-business model. Significant results were returned, in all e-business models, for the two statement pairs relating to the finance dimension. The Wilcoxon test conducted on data selected for the flat ad e-business model variable returned significant results for statements in all of the planning model dimensions. The tests conducted for data selected for the online storefront and information provider variables returned significant results for all planning model dimensions except logistics and marketing. Along with the finance dimension, the test conducted on data selected for the search agent variable returned significant results in the legality and security dimensions and the test conducted on data selected for the content provider variable returned significant results in the marketing and technology dimensions. The test conducted on the data collected for the online mall variable returned significant results only in the finance dimension. For the e-business models with sample sizes larger than 20, significant results were found for statement pairs representing most of the dimensions of the planning model. The dimensions of logistics

and marketing were not represented by statements pairs with significant results for tests conducted on data selected for the online storefront or information provider variables.

Length of Time Online

Wilcoxon tests were performed on data selected to compare various lengths of time that an organization had had a presence on the Web. Sixty-nine (69) respondents indicated that their organizations had been online for more than one year, 49 respondents indicated that their organizations had been online for more than three years and 18 respondents indicated that their organizations had been online for more than five years. The tests conducted on data selected for the more than one year and more than three years variables returned significant results for the same statement pairs, with one exception. The exception was for the test conducted on data selected for the more than one year variable and the statement pair about representation of products using Internet technology. Tests conducted on data selected for the more than one year and more than three years variables returned significant results for all dimensions of the planning model except logistics. The test conducted for data selected for the more than five years variable returned significant results for all dimensions of the planning model except logistics and marketing.

Evolution of the Organization

Wilcoxon tests were performed based on the online and bricks-and-mortar evolution of the organization. Twelve (12) respondents indicated that their organizations operated solely online and 58 respondents indicated that their organizations originally had a bricks-and-mortar presence. There were insufficient data to conduct tests on data selected for the organizations that went online at the same time that they had a bricks-and-mortar presence and those that

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went online before they had a bricks-and-mortar presence. The test conducted on data selected for the organizations that were online only variable returned significant results for statement pairs representing the planning model dimensions of finance, legality, operations and technology. The test conducted on data selected for the organizations that were originally bricks-and-mortar variable returned significant results for statement pairs representing each of the model dimensions except logistics.

Further Wilcoxon tests were performed on organizations that had a bricks-and-mortar presence before adopting e-commerce. Ten (10) of the respondents indicated that their organizations had a bricks-and-mortar presence for one to five years before going online and 44 of the respondents indicated that their organizations had a bricks-and-mortar presence for more than five years before going online. The test conducted on data selected for the organizations that were bricks-and-mortar for the one to five years variable were significant for statement pairs in the model dimensions of legality and security. The test conducted on data selected for the organizations that had been bricks-and-mortar organization for more than five years before going online variable returned significant results in statement pairs representing all model dimensions except logistics.

Industry Sectors

Wilcoxon tests were conducted for each industry sector identified in the survey. Of the sectors with sufficient data for analysis, 34 respondents indicated that they represented manufacturing organizations, 8 respondents indicated that they represented retail organizations, 6 respondents indicated that they represented wholesale trade organizations, 6 respondents indicated that they represented information organizations and 6 respondents

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represented organizations in the "other" category of industry sectors. The test conducted on data selected for the manufacturing organizations variable returned significant results for all planning model dimensions except logistics; and the test conducted on data selected for the other organizations variable returned significant data for all planning model dimensions except marketing. The test conducted on data selected for the information organizations variable returned significant results in the dimensions of legality and technology; and the test conducted on data selected for the wholesale trade organizations variable returned significant results for a statement pair representing the security model dimension. The test conducted on data selected using the retail variable did not return any significant results.

Summary of Wilcoxon Ranked Signs Tests

The results of the Wilcoxon tests for the entire data set indicate that the respondents showed significantly more agreement with most of the statements of Part 2 than they did with those of Part 1. When tests were conducted on data that were selected for variables describing the respondents' organizations, in general the test results agreed with the results of the test on the entire data set provided that the sample size was above 20.

TABLE 10 – WILCOXON SIGNED RANKS TEST

Statement	All Respondents	Business-to-business	Business-to-consumer	Business-to-government	Online Storefront	Information Provider	Flat Ad	Search Agent	Intermediary	Content Provider	Online Mall	More than 1 yr. Online	More than 3 yr. Online	More than 5 yr. Online	Operating Solely Online	Originally Bricks-and-mortar	B&M 1 to 5 yr. Before Online	B&M Over 5 yr. Before Online	Manufacturing Organization	Retail Organization	Wholesale Trade	Information	Other
It is important to understand how much money it will take to start the venture. – You realized how much money it would take to start the venture.	81	69	31		31	31	32	8	10	12	5	69	49	18	12	58		44	34				20
It is important to understand the costs of continuing to operate the online business. – You understood the costs of continuing to operate the online business.	81	69	31	17	31	31	32		10	12	5	69	49	18	12	58		44	34				20
It is important to consider potential legal issues relating to electronic commerce. – You considered potential legal concerns relating to electronic commerce.	81	69	31		31	31	32	8	10			69	49	18	12	58	10	44	34				20
It is important to consider how regional sales tax laws might impact transactions to collect monies for e-products. – You considered how regional sales tax laws might impact transactions to collect monies for your e-product(s).	65	54	24		30	24	22	8	8			53	37	14	12	45	10	33	26			6	15
It is important to consider how you will deliver your product(s) to customers. – You considered how you would deliver your product(s) to customers.																							
It is important to consider available supplier delivery arrangements. – You considered available supplier delivery arrangements.																							
It is important to consider warehousing arrangements for your product(s). – You considered warehousing arrangements for your product(s).	57						24																
It is important to consider the cultural challenges in e-marketing a product throughout the world. – You considered the cultural challenges in e-marketing your product throughout the world.	68	58					26					57	41			49							13
It is important to examine whether a product can be represented using Web technology. – You examined whether your product could be represented using Web technology.	76	64					30			12			46					40	32				
It is important to consider whether a site should be developed to accommodate target users with slow speed Internet access. – You considered whether your site should be developed to accommodate target users with slow speed Internet access.																							
It is important to consider whether the technology available on the Internet is adequate to collect monies for any product. – You considered whether the technology available on the Internet was adequate to collect monies for your product(s).	62	52	22		30	22	21					50	36		12	41		29	24				19
It is important to hire adequate technical staff to maintain e-commerce related hardware and software. – You hired adequate technical staff to maintain your e-commerce related hardware and software.	73	61	29		30	29	28	8				61	44	17		53		40	31				
It is important to consider potential changes to responsibilities of existing staff that are needed to support e-commerce – You considered potential changes to responsibilities of existing staff that are needed to support e-commerce.	72	60	29		29	29	27					61	44	14		53		40	31				19
It is important to provide extensive staff training. – You provided extensive staff training.	69	57	28		28	28	25					58	40			49		38	29				5
It is important to have the full support of upper management while developing an e-commerce business. – You had the full support of upper management while developing the e-commerce business.	71	60	29		29	29						60	53			53		41	31				
It is important to consider online security issues. – You considered online security issues.	79	68	31	14	31	31	30					68	49	18		57		44	31				20
It is important to consider physical security issues. – You considered physical security issues.	80	69	31	17	31	31	31					69	49	18		58	10	44	34		6		
It is important to be aware of potential technical problems. – You were aware of potential technical problems.	78	67	30	16	30	30	30			12		69	49	18	11	58		44	32			6	20

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3.4.2 Qualitative Analysis

Twenty-seven (27) respondents out of the 81 surveyed (33 percent of the sample) provided additional comments about their e-commerce experiences. Their comments are themed based on the dimensions of the strategy-based e-commerce planning model developed by Kao and Decou (2003) and are discussed below. While the comments could be related to the dimensions of the model, the content of some of the comments exposed facets of the dimensions that had not been addressed in the survey.

Logistics

One respondent indicated that it was necessary to pay close attention to shipping charges. This comment highlighted the need to consider the method of incoming and outgoing shipping, and to control the costs for this component of the business.

Marketing

Respondents raised several issues that related to the marketing dimension. Providing good customer service was noted as being important. One respondent discussed the need to change the business plan and operation to meet the customers' needs, while another suggested that continuous feedback concerning customer needs was important. Another respondent stated that transaction-based business required a high level of customer and professional services. One respondent commented on the need to make online transactions simple for consumers in order to minimize the chances of the customer abandoning the transaction before it was completed. Customer relationship management had not been addressed in the survey. The

number of comments that emphasized its importance suggested that it should be considered in venture planning.

A number of respondents indicated that the e-commerce portion of their organization provided information or flat ads. One respondent indicated that this method did not provide new contacts, but provided information for established contacts. This comment demonstrated that there are challenges in reaching potential customers that should be considered prior to starting the venture.

The challenges of marketing products online was discussed. One respondent stated that customer preferences and propensities to purchase differ for the web as compared to other promotion and distribution channels. A planning phase would be an appropriate time for an organization to address any potential problems related to the differences.

One respondent talked about the problems of using "pay-per-click" advertising with the potential for "click spamming" being used by competitors to deplete advertising budgets. This comment also demonstrated the challenges of marketing a product online.

Operations

Respondents described the many challenges of staffing an e-commerce venture. "An organization has to be well prepared and, most importantly, must count on competent, experienced staff. Nothing is magical - some people used to think that having a website would guarantee more revenues - it's far from being true!" Another respondent, from a smaller

organization, described the experience that " we certainly don't have a whole IT department or a lot of staff. I am only as computer literate as the company needs me to be and I claim sole responsibility for the company website (via Frontpage), the shopping cart and the arrangements with the card processors." Another respondent expressed frustration at being unable to provide more regular website updates without employing expensive consultants. These comments highlighted the importance of anticipating staffing requirements for an e-commerce venture.

Security

Two respondents expressed concern with the amount of spam that their organizations were receiving. They felt that it threatened their ability to continue using this system. As one respondent stated, "Convenience and security are the keys to growth in this realm". These comments demonstrated that it would be useful to consider security issues prior to starting an e-commerce venture and to develop strategies for correcting situations that threaten the system.

Strategy

One respondent, from a smaller organization in the industrial sector, felt that the owners/operators of these businesses tended to come from an age cohort that was uncomfortable with the technology. Consequently, there were challenges in securing support for proper maintenance, training or financial backing in this sector. This comment highlighted the challenges caused by the lack of an upper management "champion" for the venture.

It was suggested that mistakes were made by organizations rushing into e-commerce: "In order to get to market quickly, I observed that many organizations bypassed core IT fundamentals in designing and delivering a solution. This is probably because the initiative was driven in large by the sales and marketing activity with minimal involvement from IT in developing the strategy". This comment highlighted the benefits of carefully considering who is included in the planning process.

Another respondent discussed the importance of choosing the right venture partner. It was suggested that it is important to choose a venture partner who is skilled in e-commerce.

One respondent felt that it was important to "fully understand the scope of the project and have a process in place that involves pre-planning and approval of the complete scope. The FUNDAMENTAL issue is, however, a clear business plan. Changes in business structure can cripple any online production if they are closely tied together." Another respondent stated that entering into the venture added no value to their operations. These comments highlighted the importance of the e-commerce strategy being integrated into the organizational strategy.

Summary

The above comments offered by respondents as additional information in the survey demonstrated that the respondents had concerns that supported the importance of the dimensions of the model proposed by Kao and Decou (2003). The fact that so many comments may be reflected in the dimensions of the model suggested that the model is useful for practitioners in planning an e-commerce venture.

3.5 Limitations of the Survey

The key limitations for this study are noted as follows:

1. It is difficult to describe the e-commerce population in Canada. A convenience sample was drawn from two sources in order to collect a sample that might be more diverse than a sample collected from a single source.

2. The literature indicated that e-mail/web-based surveys had acceptable response rates (Dillman, 2000; Cobanoglu et al, 2001). This may no longer be the case. In the current study, a 2.1 percent response rate was realized.

3. Employing a Web-based survey provided complete confidentiality for the respondents. However, this feature hindered the ability of the researchers to send follow-up reminders to respondents who had not completed the survey.

4. There was a need to collect enough data to complete the desired analyses while keeping the survey short enough that respondents would be willing to complete it. Consequently, many questions that could have been useful to the better understanding of the relevance of the model were not included.

5. The sample was drawn from organizations that currently have an e-commerce presence on the Web. It did not look at organizations that attempted ventures and failed.

3.6 Discussion

This study explored whether a sample of practitioners felt that the dimensions of the strategy-based e-commerce planning model developed by Kao and Decou (2003) were important considerations in the initiation of an e-commerce venture. The statements of Parts 1 and 2 of the survey used in the study were developed from the examples provided by Kao and Decou (2003) to demonstrate the relevance of the model dimensions for e-commerce practitioners. Each of the statements was, therefore, linked to the dimensions of their planning model.

Measures of Central Tendency

Measures of central tendency were determined using the median and mode tests for Parts 1 and 2 of the survey. In all instances, the measures showed that, on average, respondents chose either "agree" or "strongly agree" for the statements of Parts 1 and 2. These observations demonstrated that the respondents had either carefully considered the issues represented by the statements or felt that they were important to be considered. The statements were drawn from examples that Kao and Decou (2003) offered to demonstrate how the strategy-based e-commerce planning model was applicable to e-commerce planning and the model dimensions were linked to the examples. Therefore, the finding that respondents chose "agree" or "strongly agree" to reflect their opinions about the statements supports the suggestion that the model is relevant for practitioners.

An additional observation of the measures of central tendency concerning the statement pair reflecting the respondents' opinions about providing extensive staff training when adopting e-commerce suggested that the importance of training may have been underestimated. Prior to launching their venture, the median value for the statement was "neutral". After lauching the venture, the median value was "strongly agree". This demonstrated that respondents recognized the importance of staff training to the success of the venture after the venture was launched. This observation suggests that further research concerning the role of training in successful e-commerce ventures may be warranted.

Wilcoxon Signed Ranks Tests

By phrasing the statements in Parts 1 and 2 in a before and after structure, the relevance of the dimensions was examined using Wilcoxon tests. While the tests conducted did not return significant results for all of the statement pairs, tests on at least one statement pair representing each dimension returned significant results. Because the Wilcoxon tests were conducted to investigate whether the experience of planning an e-commerce venture had shown participants that some issues were more important than they had realized when they originally planned the venture, and because the statements can be directly linked to the model dimensions, these observations suggested that using the model as a guide in e-commerce planning could assist in the planning process.

When the Wilcoxon tests were performed on selected portions of the sample, inconsistent results were observed. Due to the relatively small response, some of the tests were performed

on small subsets of the sample. However, if the size of a selected portion of the sample was above 20, the results were reasonably consistent across variables.

The Wilcoxon tests conducted on the responses of business-to-business e-commerce practitioners returned the same results as the Wilcoxon test for the entire sample, except for one statement pair. There was not a significant finding to indicate a change in respondents' opinions about the need to consider warehousing their products. The Wilcoxon tests conducted on the responses of business-to-consumer e-commerce practitioners returned the same results as those for the Wilcoxon test on the entire sample, except for three statement pairs. The business-to-consumer practitioners did not demonstrate a significant change in opinion for considering warehousing arrangements, the cultural challenges of e-marketing their product(s) throughout the world or whether their product could be represented using Web technology. It would appear that they were aware of the importance of these issues at the time that they began their ventures. The observations concerning their e-business types suggest that the underestimated issues related to e-commerce planning are similar for both business-to-business and business-to-consumer planners.

The e-business model adopted by the organization did not appear to result in responses that were different to those of the entire sample. There were a few exceptions. The information provider model did not show changes in opinions relating to the warehousing arrangements, nor to the marketing statements. These observations make sense, in that these issues would be of less importance to information providers than to those selling tangible goods. Respondents representing organizations using the flat ad model did not show a change of opinion regarding

the importance of upper management support in their venture. This result is predicable because, at this level of e-commerce involvement, the lack of upper management support would not have as negative an impact on the venture.

One possibility was that organizations would become more aware of the relevance of some of the statements the longer they were operating online. However, the length of time the organizations had their ventures online did not appear to change their opinions regarding the survey statements. The results for being online more than one year were virtually the same as those for being online more than three years. After five years, fewer statement pair tests returned significant results, but the size of the sample (18) may have impacted the results for that series of tests. Further research would need to be conducted to determine if there was a difference.

It was also possible that starting out as a bricks-and-mortar organization might have given e-commerce planners valuable insights into planning an e-commerce venture. The results of this test indicate that there was little difference between these planners and the entire sample. This observation, however, may be questioned because the majority of the respondents were from organizations that were originally bricks-and-mortar.

Qualitative Analysis

The responses to the request for further information concerning the respondents' experiences in moving into or entering into an e-commerce environment were themed using the strategy-based e-commerce planning model dimensions. The experiences were classified under the

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model dimensions and some of the comments reflected concerns that were not mentioned in the examples provided by Kao and Decou (2003). The fact that both the planning issues that had been anticipated by the model developers and some that had not been considered could be categorized under the dimensions of the model suggested that the model may be both flexible and comprehensive as a tool to stimulate thinking concerning possible planning problems.

Summary

Results of the analyses of the data suggest that there is reason to conduct further research around the strategy-based e-commerce planning model. There was nothing observed in the analyses to suggest that the model would not be useful for e-commerce planning. Using a larger sample or conducting interviews with practitioners would provide better insight into its practical applications.

3.7   Conclusions

The research presented in this paper demonstrated the importance of planning in e-commerce ventures. By generally selecting "agree" or "strongly agree" for the statements of Part 2, respondents indicated that they felt it was important to consider a number of issues related to specific dimensions of the strategy-based e-commerce planning model prior to embarking on an e-commerce venture. Their agreement with the statements suggested that the model may be a useful tool for planning the launch of an e-commerce venture.

The analysis was conducted on a convenience sample of organizations incorporating e-commerce. In the rapidly-growing e-commerce environment, it was not possible to collect a representative sample, so none of the observations can be generalized. What the results of the survey do demonstrate is that there are potential benefits in employing a model such as the strategy-based e-commerce planning model.

However, more research is needed in order to generally accept that the model is helpful. Further qualitative research to solicit the opinions of practitioners around the startup of an e-commerce venture would be useful to refine the model to provide better guidance for planning. The current research was conducted in Canada. It would be instructive to compare samples collected in other countries to determine if the responses were similar across borders. Research with a larger, representative sample could provide more conclusive insight into the potential benefits in using the model. There is a difference in the focus of businesses that adopt e-commerce as the core strategy for selling their products and the focus of those that adopt it as a complement to their existing organization. Further research should be conducted to investigate how the differences affect the planning strategy and focus for the organizational types.

Certainly, most North American organizations that need to be part of the e-commerce economy now have some presence on the Web. Other organizations will grow to need e-commerce, some will evolve to change their e-commerce strategy and other organizations will be born. There will be value in a model that can help guide organizations in implementing

their new or evolving ventures. The observations of this study suggest that the model presented by Kao and Decou (2003) could provide guidance for these organizations.

One other area that should be noted is the poor response rate achieved with the Web-based survey method. Although prior literature (Cobanoglu et al (2001) indicated success with the method, that was not the case for this study. The problem of spam may have contributed to this poor response. At this time, it is not advisable to attempt a Web-based survey.

In conclusion, the research described in this paper does support the suggestion that planning, prior to embarking on an e-commerce venture, is important. In order to ensure that relevant issues are addressed, employing of a model, such as the strategy-based e-commerce planning model described in this paper, could be useful. Further research needs to be conducted in order to determine the practical applications of this model.

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4. CONCLUSION

4.1 Introduction

This thesis proposed that the lack of planning and the lack of guidance for e-commerce planning may have contributed to the problems encountered by many e-commerce ventures. It also contended that a model to provide guidance in e-commerce planning could be useful. A strategy-based e-commerce planning model was developed to assist practitioners with the planning process. The applicability of the proposed model was explored by surveying Canadian e-commerce practitioners.

4.2 Summary of Research

This thesis described the development of a strategy-based e-commerce planning model, the methodology used for developing a survey to explore the applicability of the model, the results of the survey and the implications of the research. In addition, the need for further research in the area of e-commerce planning was addressed.

Chapter 2 described the development of a model to assist researchers and practitioners in focusing on the important aspects of e-commerce planning. It represented a synthesis of the existing e-commerce research. The dimensions to be considered when planning a new e-commerce venture were identified as finance, legal issues, logistics, marketing, operations, psychology, security and technology, with strategy at the core. It was suggested that the

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overlapping nature of these dimensions made all dimensions important in e-commerce planning.

Chapter 3 described a study undertaken to explore a sample of Canadian e-commerce practitioners to investigate if the dimensions of the strategy-based e-commerce planning model described in Chapter 2 were important considerations in the initiation of an e-commerce venture. The survey contained a set of statements that could each be related to specific dimensions of the model. Respondents were asked to indicate their level of agreement or disagreement with the statements. Then, respondents were asked to indicate their level of agreement or disagreement with a second set of statements that were paired with the first set. The first set of responses demonstrated the respondents' opinions when they were starting their e-commerce venture. The second set reflected their opinions about starting the venture in hindsight. The results of these responses were able to shed some light on the potential applicability of the strategy-based e-commerce planning model. Since the observations showed that respondents felt it was important to consider issues within the model dimensions when initiating an e-commerce venture, there was reason to believe that the model could assist practitioners in e-commerce planning.

4.3   Contributions of Research

Contributions of the research described in Chapter 2 include the following:

1. The strategy-based e-commerce planning model was designed specifically to assist in e-commerce planning.

2. Researchers will be able to use this model for future research.

3. There were indications that there may not be enough consideration given to employee training at the planning stage of e-commerce ventures.

Contributions of the research described in Chapter 3 include the following:

1. The research demonstrated that there is reason to believe that the strategy-based e-commerce planning model could help practitioners plan new ventures.

2. The research added to the body of knowledge concerning e-commerce practices in Canada.

4.4 Suggestions for Further Research

The model and related managerial issues discussed in Chapter 2 are not comprehensive. Further research relating to the model should be conducted. The research conducted in Chapter 3 began to address the need for additional research in e-commerce planning. Other potential research issues were identified. The observations of the survey results indicated that the model may assist with e-commerce planning. More rigourous research should be conducted to further examine the applicability of the model for practitioners. Additionally, refinement of the model may be warranted.

The current research was conducted in Canada. Collecting data from a similar population of organizations in other countries would help determine the value of the model cross-culturally.

This paper describes research that surveyed organizations that have an e-commerce component. In order to better understand the possible applications of a model such as the strategy-based e-commerce planning model, it is recommended that research be conducted to investigate the planning practices of organizations that experienced e-commerce failures.

4.5 Conclusion

In the time since the e-commerce bubble burst, the sense of urgency to get a venture online has diminished. With less of a sense of urgency, organizations are more likely to approach a new venture with a plan. The strategy-based e-commerce planning model may assist the organizations in their planning. While many organizations are already on the Web, other organizations will grow to need e-commerce, some will evolve to change their e-commerce strategy and other organizations will be born with an e-commerce component. New forms of e-commerce may emerge that do not use the Internet. A model that can help guide organizations in implementing new or evolving ventures will be useful. The strategy-based e-commerce planning model could provide guidance.

Since research specific to e-commerce is in its early stages, more studies need to be conducted about planning in new e-commerce ventures. The strategy-based e-commerce planning model, may help to identify stumbling blocks that lead to e-commerce problems and failures, and should assist practitioners in planning future e-commerce ventures.

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APPENDIX 2 – INVESTIGATION OF E-COMMERCE PLANNING METHODS

Part 1

The following statements explore the importance of factors that may relate to your organization's actual experience with putting your business online. Please recall the events leading up to putting your venture online. Please select responses based on what you believed PRIOR TO LAUNCHING YOUR VENTURE.

1. You realized how much money it would take to start the venture.

        ☐ strongly agree
        ☐ agree
        ☐ neutral
        ☐ disagree
        ☐ strongly disagree

2. You understood the costs of continuing to operate the online business.

        ☐ strongly agree
        ☐ agree
        ☐ neutral
        ☐ disagree
        ☐ strongly disagree

3. You considered potential legal concerns relating to electronic commerce.

        ☐ strongly agree
        ☐ agree
        ☐ neutral
        ☐ disagree
        ☐ strongly disagree

4. You considered how regional sales tax laws might impact transactions to collect monies for your e-product(s).

        ☐ strongly agree
        ☐ agree
        ☐ neutral
        ☐ disagree
        ☐ strongly disagree
        ☐ not applicable

5. You considered how you would deliver your product(s) to customers.

- ☐ strongly agree
- ☐ agree
- ☐ neutral
- ☐ disagree
- ☐ strongly disagree
- ☐ not applicable

6. You considered available supplier delivery arrangements.

- ☐ strongly agree
- ☐ agree
- ☐ neutral
- ☐ disagree
- ☐ strongly disagree
- ☐ not applicable

7. You considered warehousing arrangements for your product(s).

- ☐ strongly agree
- ☐ agree
- ☐ neutral
- ☐ disagree
- ☐ strongly disagree
- ☐ not applicable

8. You considered the cultural challenges in e-marketing your product throughout the world.

- ☐ strongly agree
- ☐ agree
- ☐ neutral
- ☐ disagree
- ☐ strongly disagree
- ☐ not applicable

9. You examined whether your product could be represented using Web technology.

- ☐ strongly agree
- ☐ agree
- ☐ neutral
- ☐ disagree
- ☐ strongly disagree
- ☐ not applicable

10. You considered whether your site should be developed to accommodate target users with slow speed Internet access.

        ☐ strongly agree
        ☐ agree
        ☐ neutral
        ☐ disagree
        ☐ strongly disagree

11. You considered whether the technology available on the Internet, e.g., shopping cart technology, was adequate to collect monies for your product(s).

        ☐ strongly agree
        ☐ agree
        ☐ neutral
        ☐ disagree
        ☐ strongly disagree
        ☐ not applicable

12. You hired adequate technical staff to maintain your e-commerce related hardware and software.

        ☐ strongly agree
        ☐ agree
        ☐ neutral
        ☐ disagree
        ☐ strongly disagree
        ☐ not applicable

13. You considered potential changes to responsibilities of existing staff that are needed to support e-commerce.

        ☐ strongly agree
        ☐ agree
        ☐ neutral
        ☐ disagree
        ☐ strongly disagree
        ☐ not applicable

14. You provided extensive staff training, i.e., more than 10 hrs per employee.

        ☐ strongly agree
        ☐ agree
        ☐ neutral
        ☐ disagree
        ☐ strongly disagree
        ☐ not applicable

15. You had the full support of upper management while developing the e-commerce business.

        ☐ strongly agree
        ☐ agree
        ☐ neutral
        ☐ disagree
        ☐ strongly disagree
        ☐ not applicable

16. You considered online security issues, e.g., fraud, hacking.

        ☐ strongly agree
        ☐ agree
        ☐ neutral
        ☐ disagree
        ☐ strongly disagree

17. You considered physical security issues, e.g., damage to equipment, system backup and storage.

        ☐ strongly agree
        ☐ agree
        ☐ neutral
        ☐ disagree
        ☐ strongly disagree

18. You were aware of potential technical problems, e.g., system capacity limitations.

        ☐ strongly agree
        ☐ agree
        ☐ neutral
        ☐ disagree
        ☐ strongly disagree

Part 2

The following statements explore your opinions about various aspects of starting an e-commerce business, based on what you learned during your e-commerce startup. Please indicate what you NOW BELIEVE SHOULD BE CONSIDERED PRIOR TO STARTING AN E-COMMERCE VENTURE.

19. It is important to understand how much money it will take to start the venture.

        ☐ strongly agree
        ☐ agree
        ☐ neutral
        ☐ disagree
        ☐ strongly disagree

20. It is important to understand the costs of continuing to operate the online business.

- ☐ strongly agree
- ☐ agree
- ☐ neutral
- ☐ disagree
- ☐ strongly disagree

21. It is important to consider potential legal issues relating to electronic commerce.

- ☐ strongly agree
- ☐ agree
- ☐ neutral
- ☐ disagree
- ☐ strongly disagree

22. It is important to consider how regional sales tax laws might impact transactions to collect monies for e-products.

- ☐ strongly agree
- ☐ agree
- ☐ neutral
- ☐ disagree
- ☐ strongly disagree
- ☐ not applicable

23. It is important to consider how you will deliver your product(s) to customers..

- ☐ strongly agree
- ☐ agree
- ☐ neutral
- ☐ disagree
- ☐ strongly disagree
- ☐ not applicable

24. It is important to consider available supplier delivery arrangements.

- ☐ strongly agree
- ☐ agree
- ☐ neutral
- ☐ disagree
- ☐ strongly disagree
- ☐ not applicable

25. It is important to consider warehousing arrangements for your product(s),

        □ strongly agree
        □ agree
        □ neutral
        □ disagree
        □ strongly disagree
        □ not applicable

26. It is important to consider the cultural challenges in e-marketing a product throughout the world.

        □ strongly agree
        □ agree
        □ neutral
        □ disagree
        □ strongly disagree
        □ not applicable

27. It is important to examine whether a product can be represented using Web technology .

        □ strongly agree
        □ agree
        □ neutral
        □ disagree
        □ strongly disagree
        □ not applicable

28. It is important to consider whether a site should be developed to accommodate target users with slow speed Internet access.

        □ strongly agree
        □ agree
        □ neutral
        □ disagree
        □ strongly disagree

29. It is important to consider whether the technology available on the Internet, e.g., shopping cart technology, is adequate to collect monies for any product.

        □ strongly agree
        □ agree
        □ neutral
        □ disagree
        □ strongly disagree
        □ not applicable

30. It is important to hire adequate technical staff to maintain e-commerce related hardware and software.

        □ strongly agree
        □ agree
        □ neutral
        □ disagree
        □ strongly disagree
        □ not applicable

31. It is important to consider potential changes to responsibilities of existing staff that are needed to support e-commerce.

        □ strongly agree
        □ agree
        □ neutral
        □ disagree
        □ strongly disagree
        □ not applicable

32. It is important to provide extensive staff training, i.e., more than 10 hrs per employee.

        □ strongly agree
        □ agree
        □ neutral
        □ disagree
        □ strongly disagree
        □ not applicable

33. It is important to have the full support of upper management while developing an e-commerce business.

        □ strongly agree
        □ agree
        □ neutral
        □ disagree
        □ strongly disagree
        □ not applicable

34. It is important to consider online security issues, e.g., fraud, hacking.

        □ strongly agree
        □ agree
        □ neutral
        □ disagree
        □ strongly disagree

35. It is important to consider physical security, issues, e.g., damage to equipment, system backup and storage.

   ☐ strongly agree
   ☐ agree
   ☐ neutral
   ☐ disagree
   ☐ strongly disagree

36. It is important to be aware of potential technical problems, e.g., system capacity limitations.

   ☐ strongly agree
   ☐ agree
   ☐ neutral
   ☐ disagree
   ☐ strongly disagree

Part 3

In order to help analyze the results, please answer the following questions about your e-commerce venture.

37. Please indicate the focus of your e-commerce venture (select as many choices as apply).

   ☐ business-to-business
   ☐ business-to-consumer
   ☐ business-to-government
   ☐ government-to-business
   ☐ government-to-consumer

38. How would you classify the online aspects of your venture (select as many as apply)?

   ☐ Online storefront, e.g., Amazon, Canadian Tire online
   ☐ Information provider, e.g., service manuals, no selling on website
   ☐ Flat ad - marketing information about your business, no selling on website
   ☐ Search agent, e.g., Google
   ☐ Intermediary, e.g., online middleperson
   ☐ Content provider - your business sells online information
   ☐ Online mall - your business provides access to other online businesses

39. How long have you had an e-commerce presence on the web?

   _____ Years _____Months

40. Does your organization operate solely as an online business?

- ☐ Yes (Go to Questions 43)
- ☐ No

41. If you answered NO to Question 40, which of the following apply?

- ☐ Originally bricks-and-mortar
- ☐ Went online at the same time as we became a bricks-and-mortar operation
- ☐ Became a bricks-and-mortar operation after going online

42. If you answered NO to Question 40, when did you begin your bricks-and-mortar business?

_____Years   _____Months   before going online
_____Years   _____Months   after going online
- ☐ Same time as going online

43. Please classify your organization:

- ☐ Manufacturing
- ☐ Retail
- ☐ Finance and Insurance
- ☐ Education Services
- ☐ Wholesale Trade
- ☐ Information
- ☐ Transportation and Warehousing
- ☐ Accomodation and Food Services
- ☐ Other (specify) _____

Is there anything else you would like to add about your experiences in moving or entering into an e-commerce environment?

Research findings will be posted on this web site after October 1, 2004.

By clicking on the submit button below, you are consenting to forward the information to Judith Decou for research purposes.

Submit

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APPENDIX 3 – TRANSCRIPT OF E-MAIL LETTER FOR SURVEY

http://www.uwindsor.ca/ecommerce

I am sending this request to you as a contact person for a Canadian business that has a web presence. I obtained your email address from the Canadian Trade Index.

As a Master of Business Administration student at the University of Windsor Odette School of Business, I am currently completing my MBA thesis in the subject of electronic commerce planning. Part of my research project involves conducting a study of Canadian businesses online.

This study consists of an online questionnaire pertaining to electronic commerce planning. It should require approximately 15 minutes of your time to complete. It is my hope that you will be interested in completing this questionnaire. If you are unable to complete the questionnaire, I would appreciate it if you would forward it to a business associate. You may access the questionnaire at the following location:

http://www.uwindsor.ca/ecommerce

You will be able to access the research findings at www.uwindsor.ca/ecommerce after August 1, 2004.

For further information regarding this research study, please contact me (decou@uwindsor.ca) and/or my thesis supervisor,
Dr. Diana Kao (kao@uwindsor.ca)
Associate Dean - Academic Operations
Odette School of Business
Phone (519) 253-3000, ext. 3123

Thank you for your kind consideration.

Judith Decou

ODETTE SCHOOL
of BUSINESS
UNIVERSITY OF WINDSOR

CONSENT TO PARTICIPATE IN RESEARCH

Investigation of E-commerce Planning Methods

You are asked to participate in a research study conducted by Judith Decou, MBA Candidate, from the Odette School of Business at the University of Windsor. This research study is a component of her master's thesis.

If you have any questions or concerns about the research, please feel to contact Ms. Decou (decou@uwindsor.ca) or her supervisor, Dr. Diana Kao, at (519) 254-3000 ext. 3123 (kao@uwindsor.ca).

PURPOSE OF THE STUDY

This study is being conducted to examine the factors that contribute to e-commerce planning.

PROCEDURES

If you volunteer to participate in this study, you will be asked to do the following things:

1. Provide consent to participate in the study by selecting the "Agree" button at the bottom of this page.

2. Complete a questionnaire concerning your experiences with e-commerce planning.

The total time required to complete the questionnaire should be no more than 15 minutes. You may view the research findings after October 1, 2004 at ecommerce.decou.ca.

POTENTIAL RISKS AND DISCOMFORTS

There is no risk (e.g., physical, psychological, emotional, financial, social) to you in completing this survey.

POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

It is anticipated that the results of this study will add to the current body of knowledge relating to the field of electronic commerce. As stated above, you may review the findings of this study at ecommerce.decou.ca after October 1, 2004.

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PAYMENT FOR PARTICIPATION

There is no payment for participation, other than access to the study findings upon its completion. The findings will be available at ecommerce.decou.ca after October 1, 2004.

CONFIDENTIALITY

The information will be collected and stored electronically. Due to the data collection method, all information obtained in connection with this study will be unidentifiable. Information from this study may be used for future research but will remain unidentifiable.

PARTICIPATION AND WITHDRAWAL

If you volunteer to participate in this study, you may withdraw at any time. If you do not wish to complete the survey, you may exit from the questionnaire without selecting the submit button. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. This study has been reviewed and received ethics clearance through the University of Windsor Research Ethics Board. If you have questions regarding your rights as a research subject, contact:

Research Ethics Co-ordinator   Telephone: 519-253-3000, # 3916

University of Windsor   E-mail: ethics@uwindsor.ca

Windsor, Ontario

N9B 3P4

I understand the information provided for the study "Investigation of E-commerce Planning Methods" as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study.

| Agree | Do not agree |

VITA AUCTORIS

Judith Anne Decou was born in Windsor, Ontario. She graduated from Riverside High

School in 1973. She obtained a BSc from the University of Windsor in 1997 and a Certificate

in Business Administration from the University of Windsor in 1998. She is currently a

candidate for the Master's degree in Business Administration at the University of Windsor and

hopes to graduate in Fall 2004.