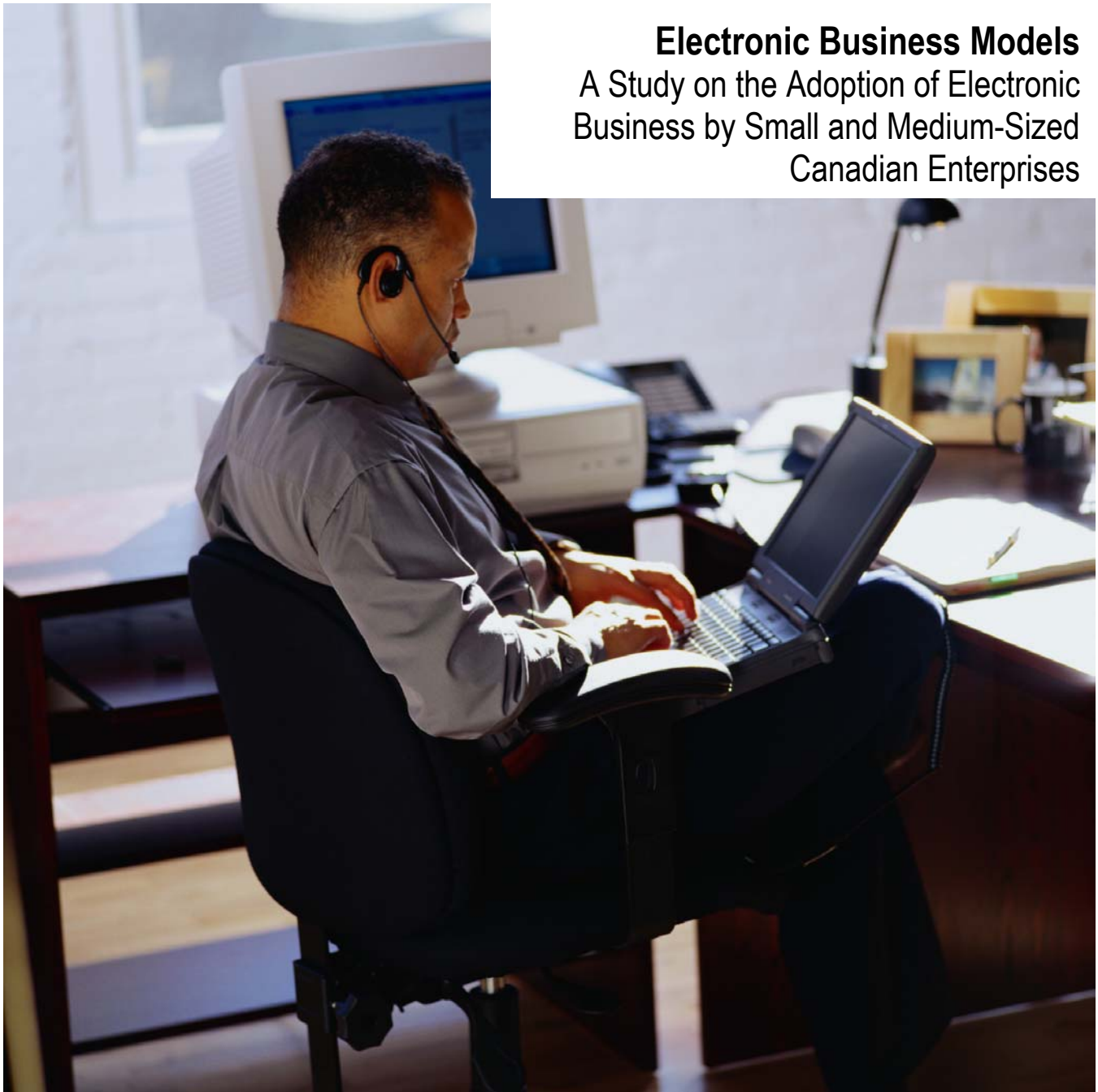


Electronic Business Models

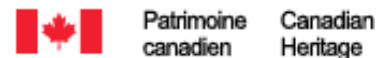
A Study on the Adoption of Electronic Business by Small and Medium-Sized Canadian Enterprises



Initiated by:



In collaboration with:



CEFRIO

is a networking centre comprising nearly 150 university, industry and government members whose mission is to help enhance the performance of organizations through the adoption of information technologies. It maintains offices in Québec City and Montréal and conducts with partners research and strategic monitoring that affect all of Québec's industry sectors.

This study is part of the “New Electronic Business (E-Business) Models and Small and Medium-Sized Enterprise (SME) Development” project, a CEFRIO initiative conducted in partnership with National Bank of Canada, CANARIE, Industry Canada, Canadian Heritage and TELUS Québec. CEFRIO wishes to emphasize the contribution made by these organizations to the realization of this project.

The opinions expressed in this study do not necessarily reflect those of CEFRIO's partners.

The authors and partners wish to thank for their assistance the companies and individuals who revised the study and contributed to the project overall.

To obtain information on the project, please contact Josée Beaudoin, Director of CEFRIO's Montréal office and the project manager.

Authors

Louise Côté, Ph.D., MBA, associate professor, HEC Montréal and a CEFRIO research associate.

Vincent Sabourin, Ph.D., associate professor, Université du Québec à Montréal, a CEFRIO research associate and head of the Groupe de recherche en management stratégique at the École des sciences de la gestion de l'UQÀM.

Michel Vézina, D.Sc., M.Sc., full professor, HEC Montréal, a CEFRIO associate researcher and Director and Editor of *Gestion, Revue internationale de gestion*.

May 2004



Québec City Office

900 René-Lévesque Blvd. East, bureau 717
Québec (Quebec) G1R 2B5 Canada
Telephone: (418) 523-3746
Fax: (418) 523-2329

Montréal Office

550 Sherbrooke St. West, West Tower
Bureau 350, Montréal (Quebec) H3A 1B9 Canada
Telephone: (514) 840-1245
Fax: (514) 840-1275

Web site: www.cefrio.qc.ca

Table of Contents

FOREWORD	6
EXECUTIVE SUMMARY	7
INTRODUCTION	9
CONCEPTUAL FRAMEWORK AND METHODOLOGY	9
ELECTRONIC BUSINESS MODELS CLASSIFICATION	10
METHODOLOGY	12
FINDINGS	13
1. THE EB STRATEGIC DECISION-MAKING PRISM	16
1.1 WHICH CONDITIONS FAVOUR THE ADOPTION OF EB?	16
1.2 HOW CAN BUSINESSES POSITION THEMSELVES IN A GIVEN INDUSTRY SECTOR?	18
1.3 WHAT ARE THE BARRIERS TO THE ADOPTION OF EB?	19
1.4 WHAT ARE THE KEY SUCCESS FACTORS IN EB?	22
2. THE EBM SELECTION DECISION-MAKING PRISM	24
2.1 HOW CAN BUSINESSES DETERMINE THE SCOPE OF THEIR EB OPERATIONS?	24
2.1.1 <i>Which functionalities and services are selected?</i>	24
2.1.2 <i>Which clienteles are targeted?</i>	26
2.1.3 <i>What is the geographic scope of the operations?</i>	27
2.2 HOW IS EB ALTERING THE VALUE CHAIN OF THE BUSINESS'S OPERATIONS?	28
2.3 HOW CAN ECONOMIC VALUE BE CREATED THROUGH EB?	29
2.4 WHICH TECHNOLOGICAL SOLUTIONS SHOULD BE FAVOURED?	31
2.4.1 <i>What are the technological solutions?</i>	31
2.4.2 <i>How does technological positioning occur in the value chain within the context of EB?</i>	31
3. THE TECHNOLOGICAL SOLUTIONS DECISION-MAKING PRISM	35
3.1 WHAT ARE THE DEVELOPMENT PHASES IN EB AND IN WHICH ORDER SHOULD THEY BE UNDERTAKEN?	35
3.2 HOW SHOULD AN EB-RELATED CHANGE BE EFFECTIVELY PLANNED?	40
3.2.1 <i>Which strategic planning mode are businesses adopting?</i>	40
3.2.2 <i>On which technological solution procurement models are they relying?</i>	41
3.3 <i>How can performance be measured and relevant indicators identified?</i>	43
3.4 WHAT ARE THE CHALLENGES AND FUTURE PROSPECTS IN THE REALM OF EB?	45
CONCLUSION	48
WHAT ARE THE KEY EB ISSUES FACING CANADIAN SMEs?	48
WHAT ARE THE SPECIFIC ISSUES OF EACH QUADRANT?	49
WHAT ARE THE SPECIFIC NEEDS OF EACH INDUSTRY SECTOR?	49
WHAT GENERAL OBSERVATIONS APPLY TO EACH QUADRANT?	51
WHAT ASSISTANCE CAN BE OFFERED TO BUSINESSES IN EACH EBM CATEGORY?	52
APPENDIX 1: ENTERPRISES CLASSIFICATION	55
APPENDIX 2: CASE STUDIES TECHNICAL FACT SHEETS	57
BIBLIOGRAPHY	66

Tables

TABLE 1: IMPORTANCE AND NATURE OF FAVOURABLE CONDITIONS	17
TABLE 2: BUSINESSES POSITIONING.....	19
TABLE 3: KEY SUCCESS FACTORS.....	22
TABLE 4: FUNCTIONALITIES AND SERVICES, SHORT AND LONG-TERM OBJECTIVES, AND EXAMPLES OF LIMITATIONS	26
TABLE 5: VALUE CREATION DRIVERS	29
TABLE 6: TECHNOLOGICAL SOLUTIONS.....	32
TABLE 7: BUSINESSES FEATURES ACCORDING TO POSITIONING IN THE VALUE CHAIN.....	34
TABLE 8: SEQUENCE OF DEVELOPMENT PHASES BY QUADRANT	36
TABLE 9: ISSUES OF EACH QUADRANT	49
TABLE 10: NEEDS OF EACH INDUSTRY SECTOR.....	50

Diagrams

DIAGRAM 1: CLASSIFICATION OF EBMS	11
DIAGRAM 2: CLASSIFICATION OF CASES	14
DIAGRAM 3: DECISION-MAKING PRISMS IN EB.....	15
DIAGRAM 4: THE EB STRATEGIC DECISION-MAKING PRISM	16
DIAGRAM 5: THE EBM SELECTION DECISION-MAKING PRISM	24
DIAGRAM 6: THE TECHNOLOGICAL SOLUTIONS DECISION-MAKING PRISM	35
DIAGRAM 7: EB DEVELOPMENT PHASES AT COOPSCO	37
DIAGRAM 8: EB PROJECT DEVELOPMENT PHASES FOR THE ICGQ-AIRESYS PARTNERSHIP	38
DIAGRAM 9: TECHNOLOGICAL SOLUTION PROCUREMENT MODELS.....	41
DIAGRAM 10: TECHNOLOGICAL SOLUTION PROCUREMENT MODELS CHOSEN	42
DIAGRAM 11: CHALLENGES AND FUTURE PROSPECTS*	47
DIAGRAM 12: EB ISSUES FACING CANADIAN SMES	48
DIAGRAM 13A: CURRENT SITUATION FOR BALANCED AND DIVERSIFIED BUSINESSES	51
DIAGRAM 13B: CURRENT SITUATION FOR BOLD AND AMBITIOUS BUSINESSES	52
DIAGRAM 14: NEEDS AND POTENTIAL SOLUTIONS OF EACH QUADRANT	53

Foreword

Since the spectacular drop in the Nasdaq Index in February 2000, the concept of the e-business model (EBM) has gained popularity.

To develop an original, balanced EBM that satisfies the company's and its business partners' needs is an essential step in the development of e-business among Canadian SMEs. To go into e-business without an EBM is like going into business without a business plan. What is an EBM? An EBM corresponds to Web-, or EDI-based technological solutions implemented to underpin the EB strategy and the company's value chain activities, including relations with its business partners, in order to create value for the company and its clients.

How should a company go about elaborating its EBM? What are the key questions that should be asked and how should such questions be answered? More specifically, what factors should a company consider before it relies on EB? What choices must it make? How should the company implement these choices? This study is intended to answer these questions through an analysis of 18 businesses or organizations that have successfully adopted EB and that operate in key sectors of the Canadian economy.

Consequently, this study is intended for all Canadian SMEs interested in ensuring their growth and competitiveness through e-business.

Executive summary

This report presents the findings of a study of 18 businesses and organizations that have successfully adopted e-business (EB). It seeks to shed light on the implementation of EB in SMEs while identifying an array of factors that govern the selection of the technological solutions that the businesses and organizations have adopted.

The study's findings are presented using an e-business models (EBM) classification (Vézina et al., 2003), and three "decision-making prisms", regrouping 12 questions.

Each EBM is defined by a combination of the strategic scope of a company's (i.e. its potential and that of its market), and the level of innovation of the technological solutions.

The 12 questions facilitate the selection and implementation of a specific EBM.

To facilitate its reading, this report is organized around the three decision-making prisms. Hence it presents the responses to the 12 related questions while referring to the four quadrants of the analytical framework developed to classify businesses and organizations according to their EBM. Examples, drawn from the business cases analysed, are presented.

What are the decision-making prisms? What questions are grouped under each one?

- The first decision-making prism addresses questions pertaining to the strategic analysis of EB. It covers four key questions :
 - (1) Which conditions favour the adoption of EB?
 - (2) How can businesses position themselves in a given industry sector?
 - (3) What are the barriers to the adoption of EB? and
 - (4) What are the factors of success in EB?

- The second prism, called the EBM selection decision-making prism, also examines four questions:
 - (1) How can businesses determine the scope of EB operations?
 - (2) How is EB modifying the value chain of the business?
 - (3) How can economic value be created through EB? and
 - (4) Which technological solutions should be favoured?

- Finally, the third prism focuses on questions pertaining to the adoption of technological solutions. It encompasses questions related to the development phases, the effective planning of change, the development of performance indicators and the challenges and future prospects of EB.

Generally speaking, all Canadian SMEs, in the six industry sectors covered by this research, share common characteristics. They have at their disposal limited financial and human resources to develop technological solutions that reduce operating costs and bolster capacity while enabling them to diversify their range of products and services. To do so, they must often collaborate with other businesses, associations, suppliers and customers, and governments in order to take advantage of significant economies of scale, to pool resources, to increase market coverage and to broaden product lines. However, any initiative in this regard can only succeed if SMEs are able to preserve their identity, independence and autonomy by resorting to parameterable, flexible, and customizable applications.

According to our classification of EBMs (Vézina *et al.*, 2003), businesses can be **balanced**, **diversified**, **bold** or **ambitious** (see appendix 1 or visit cf. http://www.cefr.io.gc.ca/english/pdf/Strategis%20_Eng.pdf).

Until now, media attention and major efforts to develop EB have focused, above all, on ambitious businesses and, occasionally, on diversified businesses. The objective of most stakeholders has been to control the market through virtual marketplaces and shopping centres. However, the development of the tools found in this quadrant went against SMEs need for identity, independence and autonomy, which explains the failure of several portals.

In this perspective, the applications developed by bold businesses seem promising for Canadian SMEs insofar as the applications developed by businesses in this quadrant are usually parameterable and customizable, thus respecting the obvious need for autonomy among SMEs, while facilitating partnerships by reducing risks and taking into account limited resources through applications in Application Service Provider (ASP) mode.

Associations, interest groups and parapublic agencies, in partnership with the private sector, sometimes take the initiative to develop innovative (bold) or generic applications (diversified) that suit the needs of SMEs in their industry sector.

Although, from a technological standpoint, the business model of balanced businesses is less attractive, it should be noted that this quadrant encompasses most Canadian SMEs, which are gradually taking upon themselves the in-house development of EB. However, our research reveals that a number of businesses in this quadrant still do not have a clear idea of the potential of EB. Moreover, many of them have still not automated their business processes, a key obstacle to their adoption and integration of EB.

Whether businesses are balanced, diversified, bold or ambitious, they have specific needs and several solutions can be contemplated in each quadrant.

Balanced businesses must be able to develop original, economical, technological solutions that ensure them the broadest possible visibility.

Through business combinations and sectoral associations, for example, diversified businesses can help Canadian SMEs by developing applications that satisfy the needs of all SMEs in an industry sector and thus enable the participating SMEs to take advantage of the economies of scale stemming from such initiatives.

Bold businesses are also well placed to respond to the needs of Canadian SMEs. However, they must be given an opportunity to develop their expertise, by means of major contracts awarded to them, that will fund the development of the relevant applications instead of relying on big, long-established consulting firms.

Finally, when ambitious businesses succeed in ensuring their socio-political legitimacy, they can help their industry structure itself, thus enhancing competitiveness in the industrial sector overall.

In addition, the needs of Canadian SMEs vary depending on their industry sector. For example, SMEs in the printing sector need to optimize their internal processes and procurement before engaging in e-business. Networking and marketplaces are essential to ensure that tourism businesses achieve maximum visibility. In the publishing sector, SMEs need, above all, affordable parameterable, and customizable applications.

Introduction

This report is part of the third phase of a project entitled “New Electronic Business (E-Business) Models” aimed at identifying effective e-business models (EBMs) adopted by Canadian businesses. Phase 1 of the project consisted in taking stock of the situation through an examination of scientific and professional research conducted with regard to EBMs. Phase 2 made it possible to examine the e-business (EB) competitive dynamic of six key industry sectors in the Canadian economy, i.e. plastic processing, printing, publishing, agri-food, tourism, and construction.

This report presents the findings of the third phase of the project, which consisted in a study of 18 businesses or organizations¹ that have successfully adopted e-business (EB). These case studies are intended to clarify the findings, obtained in phase 2 for each of the six industry sectors studied, and to examine in greater detail the implementation of EBMs.

This report is divided into three sections. The first section discusses the study’s conceptual framework and methodology. The second section presents the findings, grouped according to three decision-making prisms that cover 12 key decisions or questions concerning the strategic analysis and the choice and implementation of an EBM. Finally, we present our major conclusions and the implications of the study for the development of new EBMs.

Conceptual framework and methodology

The conceptual framework adopted in this study refers to several analytical models or frameworks,² including:

- Porter’s Competitive Analysis Model (1980), which elucidates the strategic positioning of businesses;
- the conventional strategic analysis model (Andrews, 1970), which makes it possible to pinpoint factors in the external and internal environments in which businesses develop;
- Amit and Zott’s model (2001), which proposes four sources of value creation in e-business, i.e. novelty, lock-in, complementarities and efficiency.

Moreover, we use the classification of EBMs developed by Vézina *et al.* (2003) and Sabourin and Vézina (2000) during previous phases of the project. Since this classification is used throughout the presentation and discussion of the findings of the case studies, let us review it briefly.

¹ To simplify the presentation of this report, we will only use the term “business”.

² These models are not presented in this report in order to simplify the presentation.

Electronic business models classification

This classification of EBMs identifies four categories of businesses, i.e. balanced, diversified, bold and ambitious. It takes into account the strategic scope of the businesses (their potential and that of their market) and the degree of innovation with respect to technological solutions. This classification was developed by means of an exhaustive review of scientific and professional articles during the first phase of the project. Diagram 1 indicates the classification of EBMs.

For several years, the Internet revolution has given rise to the development of EBMs that sometimes seem to be radical alternatives and sometimes variations of conventional business models.

Businesses with a revolutionary EBM either create themselves from the ground up or know how to “reinvent” themselves by adopting a new, highly entrepreneurial identity. Indeed, such businesses develop innovative technological solutions that create value. Their strategic goals focus either on marketing new technological solutions and engaging in aggressive growth at a pace that outstrips the average in their industry sector or on dominating the market or a segment of it through the imposition of a technological or commercial standard, or both.

However, “traditional” companies (“bricks and mortar”) that convert to e-business have a business model that might be described as “mixed” or “adapted” (“click and mortar”). In other words, either these companies adapt their traditional business model by incorporating into it EB applications or they establish an independent EB unit that fulfils the same functions in the same market segment as their traditional business unit.

The development of an EBM and its “implementation” by means of a technological solution are also determined by the company’s **strategic scope**, which refers to the company’s potential (trade, know-how, available resources, executive leadership, product strength, and so on) and growth prospects in a given market. Indeed, this scope **narrows** if the company decides to confine its operations to a single product or market segment and **expands** if the company, through EB, pursues a market diversification and distribution and/or procurement control strategy or imposes a technological standard. Strategic scope is therefore largely determined by growth prospects and the company’s ability to embark on a market diversification and control strategy.

In order to delineate an EBM, it is essential to take into account the company’s strategic scope and the innovative nature of its business practices. When these two facets are considered, it is then possible to pinpoint four groups or categories of businesses with which basic skills, strategic aims and specific technological solutions can be associated. To each quadrant corresponds a perspective in respect of which certain hypotheses or premises are proposed. Thus, we have identified balanced, diversified, bold or ambitious businesses, which are metaphors to illustrate the nature of the companies’ strategic “behaviour” or *idiosyncrasies*. Readers wishing to obtain additional information on this classification of EBMs should refer to Appendix 1.

DIAGRAM 1: CLASSIFICATION OF EBMS

		Strategic scope	
		Narrow	Broad
Degree of innovation	Traditional model	<p>Balanced businesses</p> <p>Basic skills Control, integration and visibility</p> <p>Strategic aim Strengthen the firm's basic skills by focusing its operations on a single product-market</p> <p>Technological solutions Integrated management systems, promotional or transactional Web site, navigation tools for product and service research, cyberstore</p>	<p>Diversified businesses</p> <p>Basic skills Control of distribution and procurement</p> <p>Strategic aim Take advantage of market growth opportunities through diversification and control of distribution and procurement</p> <p>Technological solutions Development of e-malls, integration of the value chain through special partnerships</p>
	Revolutionary model	<p>Bold businesses</p> <p>Basic skills Technological expertise and specialization</p> <p>Strategic aim Develop new, innovative algorithms and maintain a growth rate that exceeds that of the market</p> <p>Technological solutions Collaborative portals, auctions, sophisticated search engines</p>	<p>Ambitious businesses</p> <p>Basic skills Management of partnerships and market share</p> <p>Strategic aim Dominate the market or a segment of it by imposing a technological and commercial standard</p> <p>Technological solutions Horizontal and vertical e-marketplaces and virtual communities</p>

Methodology

In order to validate the findings of the sectoral analyses, and better understand implementation and the factors underlying it, we studied 18 businesses or associations that have successfully adopted EBMs. Most of the cases studied were selected from lists supplied by sectoral associations and our partners. Three of them were found on the Web. The directors of the sectoral associations, Industry Canada officials and company executives confirmed the assessment of these successful cases. In conjunction with this study, the measurement of success is assessed in light of the company's exemplary nature in its industry sector.

However, we have noted that the degree of success of these case studies varies considerably depending on the sector. In sectors with high digitization potential, such as printing, publishing or tourism, we observe that the measurements of success are clear and properly elaborated. In sectors with more limited potential for digitization, such as the plastic processing, agri-food and, to a lesser extent, construction sectors, the cases of success (despite a nationwide search) may seem less readily apparent than those in other sectors. However, this highlights the specific characteristics of each of the sectors studied.

Data were collected by means of documentary searches and interviews, except for the Constructware case, which was drafted using secondary data only. Documentary searches focused, first and foremost, on the companies' Web sites, press releases and articles from professional, sectoral or scientific journals. Interviews were conducted among the executives of companies or organizations by means of a semi-structured questionnaire that was validated by means of pilot interviews. Interviews in nine of the 17 cases were recorded with the interviewees' permission.³ Moreover, all of the cases based on interviews were submitted to the interviewees to validate the data collected and to make the necessary changes.

³ Cases where interviews were not recorded were written up within four days of the interview, to ensure accuracy and integrity of the data.

Findings

The findings of this study are presented by using the classification of EBMs, as applied to the 18 cases examined (Vézina *et al.*, 2003) (see Diagram 2), and the three decision-making prisms. The questions follow a logical but not necessarily sequential progression and make it possible to broach the requisite strategic analysis before EB is adopted and to pinpoint a number of questions pertaining to the choice and implementation of EB.

As Diagram 3 shows, the first decision-making prism centres on the strategic analysis of EB. This first prism encompasses four key questions:

- (1) Which conditions favour the adoption of EB?
- (2) How can businesses position themselves in a given industry sector?
- (3) What are the barriers to the adoption of EB? and
- (4) What are the key factors of success in EB?

The second decision-making prism, called "the EBM selection decision-making prism", encompasses four questions:

- (1) How can businesses determine the scope of EB operations?
- (2) How is EB altering the value chain of the business's operations?
- (3) How can economic value be created through EB? and
- (4) Which technological solutions should be favoured?

DIAGRAM 2: CLASSIFICATION OF CASES⁴

		Strategic scope	
		Narrow	Broad
Degree of innovation	Traditional model	<p>Balanced businesses</p> <p>La ferme Martinette (A) Maison Laprise (C) Revue Gestion (Pu) Impression Paragraph (Pr) Moules Industriels (PI) Polar Plastic (PI) GLP Hi-Tech (PI) Colibri Tours (T) Auberge de La Fontaine (T)</p> <p>Quadrant 1</p>	<p>Diversified businesses</p> <p>ACQ* (C) Coopsco (Pu) RECF* (Pu) Caractéra-Neomédia (Pr)</p> <p>Quadrant 2</p>
	Revolutionary model	<p>Bold businesses</p> <p>Comviatel (A) Constructware (C) ICGQ-Airesys* (Pr)</p> <p>Quadrant 3</p>	<p>Ambitious businesses</p> <p>ECCnet (A) Bonjour Québec.com (T)</p> <p>Quadrant 4</p>

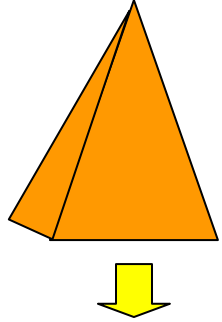
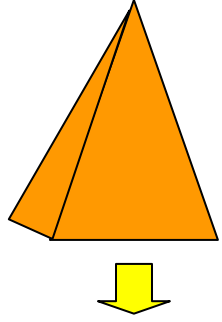
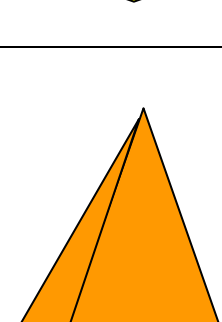
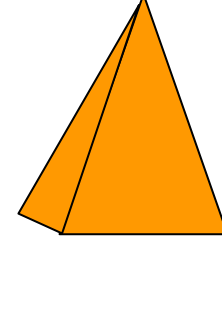
Legend: A: Agri-food C: Construction Pu: Publishing
 Pr: Printing T: Tourism PI: Plastic processing

* ACQ: Association de la construction du Québec
 RECF: Regroupement des éditeurs canadiens-français
 ICGQ-Airesys: partnership between the Institut des communications graphiques du Québec and Airesys

The third decision-making prism makes it possible to examine questions pertaining to the adoption of technological solutions, their implementation processes and their performance. The questions raised focus on planning the development phases, the efficient planning of change, performance and performance indicators, and the challenges and future prospects of EB.

⁴ Appendix 2 provides a fact sheet for each company. However, it should be noted that the businesses in quadrant 1 are essentially the traditional players that we find in an industry sector while those in the other quadrants are, for the most part, either new firms that owe their establishment to EB or associations or sectoral groups wishing to accelerate the adoption of EB in their sector.

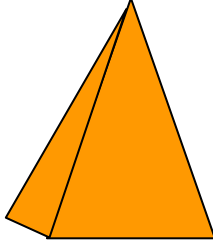
DIAGRAM 3: DECISION-MAKING PRISMS IN EB

EB strategic decision-making prism:	
1 Which conditions foster the adoption of EB?	
2 How can businesses position themselves in a given industry sector?	
3 What are the barriers to the adoption of EB?	
4 What are the key factors of success in EB?	
EBM selection decision-making prism:	
1 How can businesses determine the scope of their EB operations?	
2 How is EB altering the value chain of the business?	
3 How can economic value be created through EB?	
4 Which technological solutions should be favoured?	
Technological solutions decision-making prism:	
1 What are the development phases in EB and in which order should they be undertaken?	
2 How should an EB-related change be effectively planned?	
3 How can performance be measured and the relevant indicators be identified?	
4 What are the challenges and future prospects in the realm of EB?	

1. The EB strategic decision-making prism

Let us first examine the decision-making prism respecting the strategic analysis of EB needed before a business adopts EB. Diagram 4 indicates the four questions associated with this prism.

DIAGRAM 4: THE EB STRATEGIC DECISION-MAKING PRISM

1 Which conditions favour the adoption of EB?	
2 How can businesses position themselves in a given industry sector?	
3 What are the barriers to the adoption of EB?	
4 What are the key factors of success in EB?	

1.1 Which conditions favour the adoption of EB?

How does the external environment promote the adoption of EB? More specifically, what are the importance and nature of the factors in the external environment that help create conditions favourable to the adoption of EB?

It should first be noted that the importance and nature of external factors vary depending on the category of EBM (Table 1).

Businesses in quadrant 1 (Auberge de La Fontaine, Revue Gestion, Moules Industriels, Colibri Tours and GLP High-Tech) attach fairly limited importance to factors in the external environment although their executives deem innovation (often in all of its forms) to be necessary for survival and growth in their respective markets. Depending on their industry sector, the executives of these companies do not perceive EB and its importance in the same way. In the plastic processing sector, EB is, first and foremost, a tool in the same way as the fax machine and the telephone, while in the printing and publishing sectors EB is a question of survival.

In quadrant 2 (Coopsco and the RECF) and quadrant 3 (ICGQ-Airesys and Comviatel), external factors play a more important role when EB is adopted, bearing in mind the industry sector but also the type of players. In these quadrants, government funding usually accelerates the adoption of EB.

As for the businesses in quadrant 4 (ECCnet and Bonjour Québec.com), they attach a great deal of importance to external factors. Indeed, in the case of ECCnet, the process of achieving standardization at an international level and competition from the United States largely facilitated the adoption of its EBM. In the case of Bonjour Québec.com, its decision to join with partners that either have considerable legitimacy or noteworthy technological experience and expertise has also contributed to the adoption of an EBM.

TABLE 1: IMPORTANCE AND NATURE OF FAVOURABLE CONDITIONS

Quadrant 1 Balanced businesses	Quadrant 2 Diversified businesses	Quadrant 3 Bold businesses	Quadrant 4 Ambitious businesses
External factors of limited importance	External factors fairly important	External factors fairly important	External factors very important (determined largely by market and competition factors)
Informal approach stemming from proactive executives	Coordination of the sector	Formal approach of executives who have identified specific EB needs	Concerted political and sectoral action

Our study also shows that businesses opt for different approaches when pinpointing EB opportunities in their environment.

The approach for businesses in quadrant 1 is informal although it stems from the desire of the companies' executives to be proactive. The approach adopted by the Auberge de La Fontaine relies on the founder's intuition and the possibility of gradually reaching the clientele.

For the businesses in quadrant 2 (Coopsco and the ACQ), the pinpointing of EB is part of an industrial coordination process through groups or associations. For the ACQ, it is the shift from integrated project management mode (batch project) requiring industrial coordination between the major prime manufacturers and the SMEs that played a key role.

The approach adopted by the executives of businesses in quadrant 3, e.g. Constructware, is above all formal since these companies have been established to respond to specific needs in the realm of EB.

As for firms in quadrant 4, such as ECCnet and Bonjour Québec.com, it is, instead, consultation with different levels of government and sectoral associations that makes it possible to pinpoint EB. In the case of ECCnet, this search centred on regulations and the characteristics of the Canadian system (metric as opposed to imperial system of units). These factors encouraged the adoption of a unique Canadian system and have made less attractive the development of an American solution that can be adapted to the Canadian context. Moreover, the commitment by the industrialized nations to harmonize

the 12-figure codes (Global Trade Item Number or GTIN) that appear on products has helped accelerate the adoption of EB.

1.2 How can businesses position themselves in a given industry sector?

According to Porter (1980), the profitability of businesses depends on the power they exercise over their partners, including suppliers and customers, and vice versa. Thus, companies seek to better position themselves in relation to their partners. What positioning do firms that adopt EB seek?

Businesses in quadrant 1 are endeavouring, above all, to better position themselves in relation to their clientele by offering better service through links with portals. In this way, the Auberge de La Fontaine was able, through its Web site, to attract American travellers by allowing them to reserve early. Revue Gestion also sought to enhance its positioning in relation to current and potential customers by offering an electronic version of the publication in order to counter its competitors. This is also true of GLP Hi-Tech, which set up a Web site for its Power Products Division in order to more readily reach the international market for one of its highly innovative products. Businesses in quadrant 1 are still not very sophisticated in their use of EB but are generally concerned with better positioning themselves and broadening the appeal to their customers of their products or services.

The positioning of businesses in quadrant 2 depends on the industry sector but also on the type of players. A company like Coopsco is seeking to counter threats posed by competitors such as Archambault and Renaud-Bray. It is thus striving to improve its positioning in relation to current and future customers. The same is true of the RECF, which is using its site to broaden awareness of French-Canadian works. On the other hand, an intermediary such as the ACQ has focused instead on procurement in the industry by establishing a virtual plans library to serve the construction industry.

Businesses in quadrant 3 focus, instead, on initiatives aimed at reducing the attractiveness of substitute means of dealing with traditional products and services. These ambitious businesses offer services to simplify the work of and transactions between the numerous stakeholders in the sector. Comviatel, Constructware and ICGQ-Airesys all propose different ways of doing business through EB. For example, Comviatel wishes to become the one-stop service outlet for the agri-food industry through which buyers, producers, processors and distributors meet, get to know each other better and engage in business by virtual means.

Businesses in quadrant 4 are seeking to limit the arrival of new players in EB and have taken a stance in the sector by relying mainly on entry barriers and by making it hard to imitate their electronic initiatives. Thus, ECCnet has achieved a critical mass that discourages the entry by American players on the Canadian market, while Bonjour Québec.com, by establishing a partnership with the Québec government, has made it hard for a company not engaged in such a partnership to imitate its electronic strategy. Table 2 summarizes the positioning adopted by the businesses in the four quadrants.

TABLE 2: BUSINESSES POSITIONING

Quadrant 1 Balanced businesses	Quadrant 2 Diversified businesses	Quadrant 3 Bold businesses	Quadrant 4 Ambitious businesses
Broaden negotiating power in relation to customers	Be reliant on the industry sector and type of players	Reduce the attractiveness of substitutes for traditional products and services	Create barriers to entry and imitation in the industry

1.3 What are the barriers to the adoption of EB?

This section seeks to pinpoint the main barriers to the adoption of EB and to discuss the key contributing factors that lead to the adoption of EB.

The nature of the barriers to the adoption of EB varies according to the category of business model and the degree of adoption of EB. Balanced businesses in quadrant 1 such as the Auberge de La Fontaine, Revue Gestion, Moules Industriels, Polar Plastic and Colibri Tours, mentioned most frequently the investment required and the payback period as barriers to the adoption of EB, from the standpoint of the establishment of their Web site and its ongoing development. The Auberge de La Fontaine encountered few technical barriers to adoption but significant constraints with respect to the investment required and the payback period. An investment of roughly \$50,000 was needed to make cost-effective the construction of a portal and the management of a database.

The same is true of La ferme Martinette, for which one of the main barriers to adoption was the difficulty encountered in obtaining financing for its international expansion projects. To a lesser extent, mention should also be made, especially as regards businesses in the regions, of barriers stemming from the identification of specialized suppliers. For La ferme Martinette, logistics and physical distribution continue to hamper its development. The company does business with Clickshop⁵, whose costs are high. Canada Post distributes its products although it does not provide pick-up service nor perform administrative work and introduces a great deal of complexity and additional costs stemming from Internet sales operations. Distribution and logistics costs often double the amount of an order sent by mail.

⁵ Clickshop™ is an e-commerce application server.

For certain businesses in quadrant 1, aside from demands stemming from the payback period, the use of EB to sell products may delay the adoption of EB or curtail interest in it. In some industry sectors, including plastic processing, the product is deemed to be highly customized and poorly suited to sale on the Internet, all the more so as personal contact appears to be a prerequisite to finalizing a transaction. However, this does not prevent these businesses from regularly exchanging files with their customers, mainly when the prototype is developed. Such exchanges are conducted by e-mail or through direct consultation of a Web page with a view to accelerating the development and finalization of the product.

Diversified businesses in quadrant 2 such as Coopsco and the ACQ perceive the wait-and-see attitude and scepticism of customers and partners as the main barriers to the adoption of EB. For Coopsco, the main barriers to the adoption of the functionalities of its portal stem from resistance to change among the member cooperatives and the difficulty they encounter in understanding the finished tool. Coopsco is also coming up against the reluctance of bigger cooperatives since they have already developed their own sites and have integrated them into their management systems. These cooperatives are less interested in joining the group and wish to maintain their autonomy.

The ACQ also deems the scepticism of its members to be an obstacle to the adoption of EB. The repeated failure of EB projects in the industry has exacerbated this scepticism. Consequently, the ACQ must find new ways to collaborate with other competing professional associations in its sector to ensure that its portal becomes the solution adopted by the industry as a whole. Governments have probably slowed the implementation of a common perspective in the sector by supporting an array of association Web sites. This has contributed to a wait-and-see approach and has delayed adherence to the ACQ site. Indeed, it was hard to convince several industry players, which were slow to adopt the virtual plans library. Moreover, the ACQ had to invest to counteract competing initiatives, mainly stemming from major prime contractors such as Hydro-Québec, which established procurement systems governed by different technological standards. Differences in operating requirements and standards hamper the development of a common platform for the entire industry and engender significant costs for the sector.

Among ambitious businesses in quadrant 3, including ICGQ-Airesys, Constructware and Comviatel, user scepticism is certainly an obstacle to the adoption of EB, but the stumbling block for these firms is demonstrating to financial backers the projects' profitability. Once they are in a position to implement their projects, they also face other barriers to the adoption of EB, as the example of ICGQ-Airesys illustrates.

Through a grant from Canada Economic Development, ICGQ-Airesys was able to quickly undertake an e-commerce project, although it had trouble obtaining the consent of its board of directors. Some of its members, including big firms in the printing sector, were highly reluctant to set up a portal that could benefit SMEs, their competitors. Moreover, the representatives of SMEs on the board of directors often had limited familiarity with the potential of EB and had difficulty pinpointing their needs and the objectives to be attained. They perceived a big risk and felt compelled, initially, to computerize their internal management systems.

The main obstacle to the adoption of EB among businesses in quadrant 4, such as ECCnet and Bonjour Québec.com, was the mobilization of members in respect of a long-term project for which there was no short-term urgency. Thus, Bonjour Québec.com

faced widespread scepticism and conservatism among businesses in the tourism and travel industry as regards information technologies. Furthermore, Bonjour Québec.com had to take into account that a number of firms, which do considerable business with it, are often highly reluctant to disseminate their results and business practices. Above all, they do not want their experience to benefit their competitors.

However, the businesses that we studied overcame these barriers and put forward an array of EB projects. Which factor(s) triggered their decision to adopt EB?

Among balanced businesses in quadrant 1 (the Auberge de La Fontaine, Revue Gestion, Polar Plastic and Colibri Tours), the point at which it became highly likely that the investment would be profitable and entail little risk was the main trigger.

The trigger for diversified businesses in quadrant 2 (Coopsco and the ACQ) was similar to that of the businesses in quadrant 1. The growing complexity of information needs, which creates serious coordination problems, encouraged different players to consider EB to solve their problems. The executives of these firms are convinced that EB offers the possibility of achieving significant savings but they also emphasize existing services and information.

The substitution of utility engendering prompt, often almost immediate, benefits for the user was the trigger among bold businesses in quadrant 3 (Comviatel, Constructware and ICGQ-Airesys). For these firms, the possibility of automating processes that users perceived as being costly served as a trigger. At Constructware more specifically, it was the automation of forms and their integration into the database that served as the substitution of utility in relation to the traditionally manual services used in the construction industry.

The trigger among businesses in quadrant 4 (ECCnet, Bonjour Québec.com) was often the need to change an outmoded system involving the investment of substantial funds to renew the system of traditional operations. For ECCnet, the modification of scope stemming from the use of intangible assets and the awareness of potential savings derived from the rectification of this situation through clean data were all triggers.

1.4 What are the key success factors in EB?

The key factors of success identified by company executives are very similar when we compare quadrants 2, 3 and 4. Table 3 lists the most frequent key factors.

TABLE 3: KEY SUCCESS FACTORS

Quadrant 1 Balanced businesses	Quadrant 2 Diversified businesses	Quadrant 3 Bold businesses	Quadrant 4 Ambitious businesses
<ul style="list-style-type: none"> • Cross-referral of the portal* • Simplicity of functioning* • Visual quality* • Choice of information* <p>*for a Web site</p>	<ul style="list-style-type: none"> • Applications whose benefits the industry perceives • Communication • Collaboration of the partners • Later adoption of EB and substantial investments 	<ul style="list-style-type: none"> • Rallying of industry players • First entrant • Involvement of various industry players • Early adoption of EB and major investments 	<ul style="list-style-type: none"> • Consensus-building approach • Competency and involvement of partners • Late adoption of EB and major investments

Businesses in quadrants 2, 3 and 4 comprise, above all, sectoral associations or intermediaries that provide technological solutions and it is not surprising that consultation or collaboration between the members of a given sector is a key factor of success. These organizations or intermediaries have usually invested considerable time and resources to communicate with different parties and thus pinpoint the needs of SMEs. As for businesses in quadrant 1, they are, above all, SMEs that are traditional players in their industry sectors. The key factors identified concern the implementation of a Web site and it emerges that the cross-referral of the site or portal is essential, along with its quality and the choice of functionalities that it offers. It is not unusual to note that businesses that target domestic and international markets do not hesitate to set up Web sites in French, English and even Spanish.

Furthermore, our analysis leads us to consider the timing and resources invested with respect to the adoption by each business of EB as factors of success, especially among businesses in quadrants 2, 3 and 4.

Among the balanced businesses in quadrant 1, we are referring here primarily to the timing of the establishment of a Web site. Several of the businesses set up their first Web site in 1997 or 1998, which often meant an early entry in their sector and limited investments. Indeed, the Auberge de La Fontaine has had a Web site since 1998, long before most Canadian inns. In the plastic processing sector, GLP Hi-Tech and Moules Industriels also set up their first Web sites in 1998, while Polar Plastic adopted in 1997 EDI Gateway for its customers. A similar situation obtains with regard to Impression Paragraph, which initially entered the realm of EB through Xerox's ⁶ Web "viewer and submission" solution on its first Web site, also established in 1998. However, this solution required a bigger investment by the company. Businesses in quadrant 1 often

⁶ This turnkey solution enables customers to order documents on-line and update and archive them.

derive little benefit from their initial experience, which nonetheless enables them to acquire the necessary expertise to move to the second phase of development.

Businesses in quadrant 2 adopted EB somewhat later (1999 and 2000) than firms in quadrant 1, although they are investing more heavily in EB. It should be noted that the quadrant comprises, by and large, groups or associations that are seeking to alter ways of doing business in their industry sectors. For example, the ACQ has invested since 2000 over \$2 million and the RECF has developed a site offering various consumer or non-consumer products largely funded by the federal government.

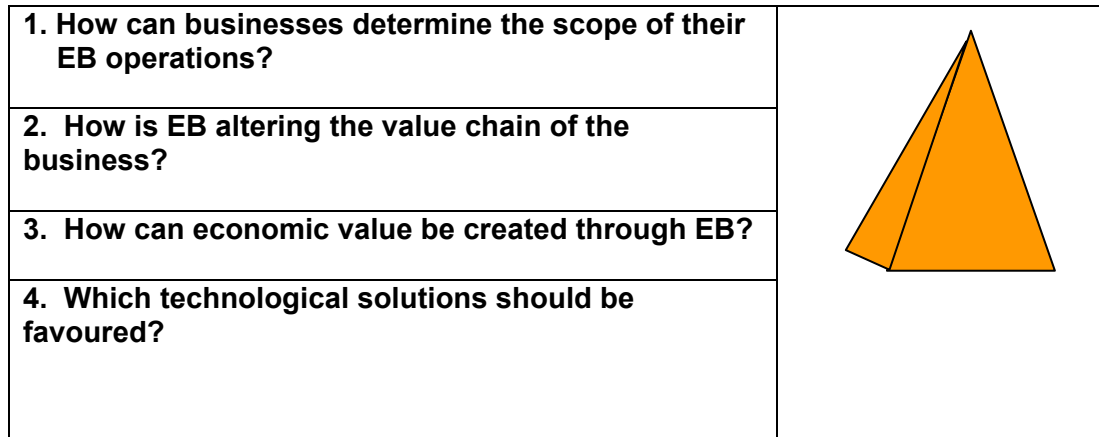
Businesses in quadrant 3 adopted EB early on, accompanied by substantial investment. The business often stems from innovative experimentation, e.g. Constructware. The database management services offered by Constructware were initially developed by one of the current owners, who, by joining forces with an industrial engineer in 1994, was able to standardize the documentation available in a database.

In quadrant 4, businesses adopted EB later but accompanied by the commitment of substantial resources under a community capitalism approach that involves businesses, sectoral associations and the government (this is true of Bonjour Québec.com and ECCnet).

2. The EBM selection decision-making prism

Diagram 5 indicates the four key questions that the decision-making prism respecting the choice of an EBM encompasses.

DIAGRAM 5: THE EBM SELECTION DECISION-MAKING PRISM



2.1 How can businesses determine the scope of their EB operations?

This section covers three specific facets that define the strategic scope of EB operations.

- The functionalities and services selected;
- The clienteles targeted;
- The geographic scope of the operations.

2.1.1 Which functionalities and services are selected?

In this section we will focus on the functionalities and services selected and indicate some of the short- and long-term objectives that businesses adopt, while emphasizing some of the limitations that such businesses face. Table 4 summarizes these factors.

Among the balanced businesses in quadrant 1 we find the functionalities and services of both information and transactional sites. The short-term objectives of these businesses are to reduce information and promotional costs. The functionalities selected by the Auberge de La Fontaine seek to offer simple tools that facilitate decision-making. The links with tourist and cultural activity programs in Montréal have enjoyed the greatest success and are enhancing the site's value. However, it should be noted that while the reservation request is made on-line, confirmation is not immediate. The main functionalities of La ferme Martinette's site offer an integrated approach to its three core operations, i.e. the sugarhouse, accommodation and the sale of maple products. Among other things, they make accessible photographs that are easily downloadable. However, only the sale of maple products is conducted entirely by means of EB. In the case of

GLP Hi-Tech and GLP Power⁷ the sites are mainly information sites that provide company profiles, product information, news items, and so on.

The long-term objective of businesses in quadrant 1 is to develop links that create customer traffic among added-value customers. However, these models have their limitations. Reservations at the Auberge de La Fontaine are still made mainly by telephone as customers want to confirm their reservation in person rather than through an electronic system. International customers of GLP Power learn about the business through its Web site but transactions are still finalized by fax, telephone or E-mail.⁸

The main functionalities offered by diversified businesses in quadrant 2 are the digitization of functions that require extensive information. These categories of business models are intended, by and large, to achieve short-term savings of time and money. The most important functionality at the ACQ is a digitized plans library that adds a functionality to the traditional services offered to entrepreneurs. The long-term objective is the shift in the industry to high diversification of the services offered.

The functionalities adopted by bold businesses in quadrant 3 are related primarily to applications distribution transactional sites. The short-term objective is to develop an application that relies on a key function and by offering the savings achieved. Comviatel mainly sells rural products. It offers vendors functionalities that make it possible to integrate in a standardized manner into databases price lists, specifications such as sizes and quantities, the availability of stocks, and other information such as delivery schedules. Moreover, vendors can quickly, efficiently determine the cost of merchandise. Buyers have access to an order and delivery planning tool. A search engine makes it possible to broaden the directory of buyers and producers while reducing the cost of searching for information. The long-term objective is to dominate a segment by means of an indispensable technological solution.

One of the limitations encountered is that of Constructware, the use of whose functions by users is usually confined to a single, main application. Constructware's initial objective of providing the best technological solutions shifted to project management solutions that facilitate better collaboration between partners in the commercial construction sector.

The functionalities selected by bold businesses in quadrant 4 focus on the development of norms and an industry-wide standard. The short-term objectives centre on the bundling of applications with a combined system effect.

Bonjour Québec.com provides three specific functionalities:

- an information function intended for travellers from different parts of the world who plan to visit Québec. This dynamic mapping, like geographic cross-referral, is more effective than simply making available road or geographic maps; a reservation function; a customer service function (Customer Relationship Management or CRM approach).

The long-term objective in quadrant 4 is to offer a complete, broad, integrated range of horizontal and vertical functionalities. Despite this integration objective, the ECCnet project relies on passive functions and has not allowed until now for on-line transactions.

⁷ GLP Power is the Power Products Division of GLP Hi-Tech.

⁸ GLP Power plans to develop, in the near future, an on-line submission functionality.

2.1.2 Which clienteles are targeted?

The balanced businesses in quadrant 1 are seeking, first and foremost, to bolster by means of EB the segment of their existing market. Their Web sites are often part of the communications mix, as is the case with GLP Hi-Tech and Maison Laprise.

The diversified businesses in quadrant 2 are seeking intermediate market scope that leads to targeting new segments while avoiding the cannibalization of their products and services. Thus, the main objective is to diversify the clientele and satisfy new needs.

TABLE 4: FUNCTIONALITIES AND SERVICES, SHORT AND LONG-TERM OBJECTIVES, AND EXAMPLES OF LIMITATIONS

	Quadrant 1 Balanced businesses	Quadrant 2 Diversified businesses	Quadrant 3 Bold businesses	Quadrant 4 Ambitious businesses
Functionalities and services	Information site aimed at becoming transactional sites	Digitization of functions that require extensive information	Application distribution transactional site	Development of norms and a standard for the entire industry
Short-term objectives	Reduce the cost of information and promotion	Savings of time and money	Mainspring application with a single function offering the savings achieved	Bundling of applications with a combined system effect
Long-term objectives	Allow for the development of links that create customer traffic among added-value customers	Shift in the industry to extensive diversification of the services offered	Dominate a segment through an indispensable mainspring application	Complete, broad, integrated range of horizontal and vertical functionalities
Examples of limitations	Auberge de La Fontaine: most reservations are still made by telephone since customers prefer to confirm their reservations in person rather than through an electronic system	ACQ: there are mainly two parallel, costly systems	Constructware: the use of functions is confined to a single main application	ECCnet: the project relies on passive functions and does not allow for on-line transactions

The bold businesses in quadrant 3 operate in a single segment with high growth potential, thus protecting themselves from competition. They opt for limited scope and rely intensively on EB.

The ambitious businesses in quadrant 4 have broad market scope with significant segmentation that combines oligopolistic practices, depending on the price sensitivity of clientele. The objective is to serve all groups of customers in order to obtain substantial market share. For this reason, Bonjour Québec.com first pursued a differentiation strategy that complemented various distribution channels and is shifting actively to a segmentation strategy by relying on alliances with regional tourism associations and socio-economic partners such as the Fédération de la motoneige du Québec.

2.1.3 What is the geographic scope of the operations?

Through EB, businesses seek to consolidate or expand their geographic market. Their objectives differ depending on the category of EBM.

The businesses in quadrant 1 are often non-specialized regional firms seeking geographic expansion. La ferme Martinette, which offers consumers on Montréal Island activities in its sugarhouse, is also striving to reach a more international market with the sale of its maple products. The Auberge de La Fontaine, which has only one Web site and one service outlet, is also seeking to serve a more international clientele, primarily North American. Its site is bilingual (French and English) and a Spanish version should be available in the coming months. Over the past year, 24% of the inn's customers discovered it through the Web site, 49% of them from the United States, 42% from Canada, and 3% from France. The GLP Power Division of GLP Hi-Tech recently set up a new version of its Web site to promote a range of products with high potential for international sales. This version of the site is now available in English and will soon be available in French and Spanish.

The businesses in quadrant 2 operate in a Canadian province but tend to regionalize their sites in order to better satisfy their customers' needs. This is true of the ACQ, whose project is geographically decentralized in Québec's 13 regions. This regionalization is one of the factors of success of the plans library as it ensures regional proximity and allows businesses in a region to undertake projects. The situation is similar to that found at Coopsco, whose EB project was carried out in such a way that it benefits all of its 60 members, regardless of geographic location. The portal is customized at the local level.

The ambitious businesses in quadrant 3 are seeking, instead, to broaden their geographic market and often target domestic markets. From a geographic standpoint, Constructware's operations are located and centralized north of Atlanta and the company serves an exclusively American clientele. There is only local support available through the internal supervisor of the Constructware site. Constructware makes possible the realization of American projects within the United States in addition to enabling American firms to manage overseas projects through constant collaboration with foreign countries.

Similarly, the ICGQ-Airesys project is intended for all SMEs in the printing sector regardless of their location in Québec. Comviatel mainly serves the Québec City region, while striving to bolster its presence in other regions.

The businesses in quadrant 4 are usually seeking a quasi-international market and pay little attention to geographic differences that are often perceived as a constraint and that complicate the implementation of common operating standards. From a geographic standpoint, Bonjour Québec.com is the principal destination portal in Québec and anticipates development in the other Canadian provinces and other industrialized nations to enable foreign partners to take advantage of this expertise.

This is also true of ECCnet, for which geography has little importance. Indeed, one of the advantages of ECCnet is to fall within the logic of globalization and avoid inserting geographic elements that would complicate the project's operation.

2.2 How is EB altering the value chain of the business's operations?

This section focuses on the impact of EB on a business's value chain.

A number of businesses in quadrant 1 initially sought to optimize their operations by adopting EB, e.g. Colibri Tours, which, through the simplicity of its Web site, was able to enhance its day-to-day operations by offering service 12 hours a day. Generally speaking, reliance on the Internet has accelerated information exchanges between SMEs and their customers, thus making it possible to optimize the businesses' internal operations. In the plastic processing sector, the new information technologies have largely helped to accelerate product development and refinement. Moreover, the establishment of a Web site has enabled several businesses to increase their sales while consolidating their original markets and penetrating new ones.

EB initiatives have encouraged some businesses in quadrant 2 to review the procurement function, while others have altered their marketing and sales operations. For example, Caractéra-Neomédia has grouped together formerly separate operations to offer its customers an integrated range of publishing and printing services, ranging from database management to the publication of printed or Web documents, including operations ranging from knowledge management to document printing.

The businesses in quadrant 3 have modified, above all, the customer supply function. These ambitious businesses, such as Constructware and ICGQ-Airesys, offer services to a specific group of businesses in their industry sector. Comviatel has a twofold vocation. It offers producers and buyers in the food sector a solution by allowing the groups to contact each other through its electronic platform. Producers no longer have to develop their Web sites and buyers no longer have to do business with a multitude of producers whose access codes and operating methods often differ markedly.

The ambitious businesses in quadrant 4 have, instead, sought to implement a new technological standard. In this way, they are striving to modify the distribution and supply functions of the players in their industry sector, depending on whether we adopt a customer- or supplier-based perspective.

In this way, Bonjour Québec.com has succeeded in developing a multi-access approach offering a different configuration that complements information channels that already

reach travellers. Indeed, Bonjour Québec.com provides a service that complements those offered by tourist information offices and call centres. It is not trying to favour its own information channel to the detriment of other channels but is seeking to optimize all of the information channels that reach travellers. Its approach has facilitated the adoption of a technological standard while engendering positive spinoff for suppliers of services such as hotelkeepers and their customers.

2.3 How can economic value be created through EB?

In this section, we examine the impetus for the creation of economic value stemming from the establishment or use of Web sites. The creation of economic value is a long-term indicator of success of an EBM and is one of the key concerns of Canadian SMEs and their partners in the realm of EB. For this reason, this section is intended to answer the following questions: What are the value drivers? Do such drivers differ depending on the category of EBM? Value creation is examined from the standpoint of the business itself (in the case of an SME) but also from that of SMEs in the sector when the latter are the customers or suppliers of the firms studied.

Amit and Zott (2001, 2002) have suggested that the creation of economic value be evaluated in light of four factors: efficiency, complementarities, novelty and lock-in. Efficiency refers essentially to a reduction in transaction costs stemming from the speed of such transactions, the degree of automation of operations, the comprehensiveness of information, and the ease with which participants can initiate transactions. Complementarities primarily concern the bundling of resources and the capacities of the technologies used, and the bundling of products and services. Lock-in arises, instead, from the direct benefits offered to customers, e.g. price reductions. It encompasses factors that contribute to the trust and reliability accorded the technological solution, network effects and the investment required of the customer to gain access to this technological solution. As for novelty, it refers to the design and adoption of new ways of doing business in an industry sector by linking existing (or new) participants or by introducing new mechanisms.

Table 5 summarizes the most frequent value creation drivers, for the four quadrants,.

TABLE 5: VALUE CREATION DRIVERS

Quadrant 1 Balanced businesses	Quadrant 2 Diversified businesses	Quadrant 3 Bold businesses	Quadrant 4 Ambitious businesses
Efficiency (selection and range)	Complementarities Lock-in Efficiency	Novelty Efficiency	Lock-in

Among the balanced businesses in quadrant 1, efficiency is the key economic value creation driver as it allows for cost reductions, in particular as a means of finding new customers, e.g. the Auberge de La Fontaine and GLP Power.

Among the diversified businesses in quadrant 2, value creation depends, first and foremost, on complementarities, i.e. the effect of scope with respect to products and customers but also through lock-in and efficiency. The case of RECF is a good illustration of value creation by means of complementarities. Since the inception of its Web site, the RECF has been able to offer any product created by a French-speaking Canadian outside Québec or intended for the French-speaking countries and communities of the world. This group has succeeded in substantially increasing its revenues through its Web site, which would have been impossible through a conventional network of bookstores. Value creation at the ACQ depends on lock-in. Customers who do business with the virtual plans library benefit from savings in time and travel and reduce their photocopying costs. These factors help to increase the number of users and the number of hours of use by fostering customer retention. At the same time, the virtual plans library allows the ACQ to appreciably reduce its transaction costs by better integrating supplier relations in the construction sector with various construction trades.

Among the bold businesses in quadrant 3, novelty and efficiency are helping to create economic value. Constructware implemented an original solution for the construction sector. By collaborating with its clientele and sparing no effort to train customers in the use of its technological solution, it has succeeded in ensuring customer retention (its clientele accounts for 21% of the 400 biggest US construction firms). At present, Constructware makes it possible to simultaneously create, archive and manage all information pertaining to contracts, purchases, payroll services and suppliers in a single centralized database, in addition to offering project management support. On a smaller scale, Comviatel is also succeeding in establishing itself among its customers by offering a service that complements traditional order networks.

Moreover, the bold businesses in this quadrant usually benefit from economies of scale that allow them to achieve the minimum efficiency scale in the volume of business and economies of scope stemming from a diversification of products and customers. Their operations thus create economic value through enhanced efficiency.

Among the businesses in quadrant 4, lock-in and efficiency are the main economic value creation drivers. For example, Bonjour Québec.com uses dynamic mapping, such as geographic cross-referral, which makes it possible to pinpoint an individual in a region or specific neighbourhood. This function is more effective than the simple availability of road or geographic maps and is a functionality that enhances lock-in by increasing the site's utilization rate.

ECCnet achieves scope effects by obtaining the adherence of all major retailers, which in turn enables it to obtain the adherence of a very large majority of food manufacturers. These combined effects have conferred on ECCnet network savings that allow it to bolster efficiency in the food sector.

2.4 Which technological solutions should be favoured?

This section pinpoints the technological solutions that the businesses adopted. It also examines the question of positioning technological solutions in the value chain from the standpoint of their integration or non-integration with other members of the sector.

2.4.1 What are the technological solutions?

As Table 6 indicates, the technological solutions favoured differ depending on the quadrant. The businesses in quadrant 1 usually opt for conventional Web sites and e-shops to complement their traditional operations. The businesses in quadrant 2 opt, instead, for technological solutions that are similar to project management and are aimed at establishing a formal process and a technical rationality specific to the functioning of associations or sectoral groups. The businesses in quadrant 3 rely on value chain service provider and e-auction solutions, while those in quadrant 4 develop virtual community and third party electronic marketplace technological solutions.

An analysis of the frequency of use of business models reveals that the most widely used technological solutions are e-shops, followed by electronic marketplaces and service providers.

Consequently, the technological solutions that the businesses choose depend, by and large, on the quadrant with which they are identified. While there may be exceptions, this analysis makes it possible to select the most favourable solutions. However, it should be noted that the most sophisticated technological solutions are often adopted by firms that act as intermediaries in their sector (providers of technological solutions) and not traditional players that supply products and services.

2.4.2 How does technological positioning occur in the value chain within the context of EB?

Positioning through EB in the industry's value chain usually differs according to the quadrant and it significantly affects how businesses use technological solutions in order to interact with their environment.

TABLE 6: TECHNOLOGICAL SOLUTIONS

Technological solution	Case
<p>E-shop: Information or information requests, sale and distribution of the business's products and services (also operates in traditional markets).</p>	<ul style="list-style-type: none"> - Impression Paragraph¹ - Auberge de La Fontaine¹ - La ferme Martinette¹ - GLP Hi-Tech^{1*} - Colibri Tours^{1*} - Moules Industriels^{1*} - Revue Gestion¹ - Maison Laprise¹ - Polar Plastic^{1*} <p>*Information site only</p>
<p>E-procurement: A site on which vendors may sell to big buyers.</p>	<p>n/a</p>
<p>E-auction: Electronic auction site.</p>	<p>- Comviatel³</p>
<p>E-mail: Several vendors operate on the same site.</p>	<ul style="list-style-type: none"> - Coopsco² - RECF²
<p>3rd party marketplace: Transactional support for vendors.</p>	<ul style="list-style-type: none"> - Bonjour Québec.com⁴ - Polar Plastic-EDI Gateway¹
<p>Virtual communities: Foster communication between the members of a given community.</p>	<p>- ECCnet⁴</p>
<p>Value chain service provider: Support for the value chain (logistics and payments).</p>	<ul style="list-style-type: none"> - ICGQ-Airesys³ - Constructware³
<p>Value chain integrator: Create value by integrating the components of the value chain.</p>	<p>- Caractéra-Neomédia²</p>
<p>Collaboration platform: Provides tools and information to facilitate collaboration between businesses, e.g. collaborative design.</p>	<p>- ACQ²</p>
<p>Information brokers: Collection and analysis of the available information, e.g. consultation services and Yahoo Finance.</p>	<p>n/a</p>
<p>Trust service provider: Accredited body responsible for managing users' private keys, thus ensuring, through encryption, the confidentiality of electronic messages, which makes it possible to certify the authenticity of Internet-based transactions.</p>	<p>n/a</p>

Legend: ¹Balanced businesses; ²Diversified businesses; ³Bold businesses; ⁴Ambitious businesses; n/a: not applicable

The balanced businesses in quadrant 1 position themselves by means of the concept of hierarchy. Hierarchies make it possible to organize operations within the organization by means of managerial authority to make and carry out decisions. Under the circumstances, businesses in this quadrant, such as Revue Gestion, the Auberge de La Fontaine and Impression Paragraph, tend to internally centralize operations, including the development of technological solutions, in order to safeguard their identity and autonomy. This is not necessarily true of balanced businesses overall. Indeed, some of the businesses hire a consultant to develop and update their Web site. GLP-Hi-Tech is a good example.

The diversified businesses in quadrant 2 rely primarily on the establishment through the Internet of a relational network in order to position themselves in the industry. Relational networks integrate a special network of independent firms in order to reduce the production costs stemming from specialization and achieve the rapidity and flexibility necessary to deal with changes in the environment and take advantage of new opportunities. For businesses such as Coopsco and the RECF, the technological solutions are intended, by and large, to develop and consolidate their business network within their industry.

The bold businesses in quadrant 3 are seeking, above all, to establish modular networks that allow them to position themselves in the industry's value chain. These networks comprise suppliers that invest mainly in non-specific assets, such as standardized production processes, logistical support and information systems, while apportioning the costs among several customers. Businesses in the construction sector, including the ICGQ-Airesys partnership, rely on a network of customers with specific needs in order to subsequently offer distinctive, specialized products and services to a majority of customers in their industry.

Among the ambitious businesses in quadrant 4, it is the market that organizes operations in the value chain through transactions between independent firms or individuals, in light of decisions based mainly on price. These businesses favour marketplace- or auction-based approaches in order to reach as many customers as possible while offering highly competitive prices. This strategy is usually suited to businesses such as Bonjour Québec.com and ECCnet offering products and services to a broad clientele.

Table 7 indicates the characteristics of businesses operating in each quadrant. More specifically, it highlights the impact on the costs and risks that businesses incur and their ability to manage complexity and deal with change.

TABLE 7: BUSINESSES FEATURES ACCORDING TO POSITIONING IN THE VALUE CHAIN

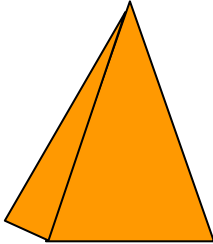
	Quadrant 1 Balanced businesses	Quadrant 2 Diversified businesses	Quadrant 3 Bold businesses	Quadrant 4 Ambitious businesses
	Hierarchy	Relational network	Modular network	Market
Production costs	High	Medium	Low	Low
Coordination costs	Low	Medium	Medium	High
Risk related to asset specificity	High	Medium	Low	Low
Risk of opportunism	Low	Medium	Low to medium	High, if number of suppliers is low
Ability to manage complexity	High	High	Medium	Low
Flexibility	High	Medium	High	High

Adapted from Jason Dedrick and Kenneth L. Kraemer, *The Impacts of Information Technology, the Internet and Electronic Commerce on Firm and Industry Structure: The Personal Computer Industry*, Center for Research on Information Technology and Organizations (www.crito.uci.edu), University of California, Irvine, July 2002, 25 pages.

3. The technological solutions decision-making prism

The third decision-making prism focuses on the use of technological solutions and refers to process-related aspects and performance measurement in the businesses. This prism encompasses four key questions (see Diagram 6).

DIAGRAM 6: THE TECHNOLOGICAL SOLUTIONS DECISION-MAKING PRISM

1 What are the development phases in EB and in which order should they be undertaken?	
2 How should an EB-related change be effectively planned?	
3 How can performance be measured and the relevant indicators be identified?	
4 What are the challenges and future prospects in the realm of EB?	

3.1 What are the development phases in EB and in which order should they be undertaken?

The development phases encompass three main types of operations. The first is the integration of management processes, which consists in standardizing internal operations and setting up computerized management systems. Procurement centres on the acquisition of materials and other products or services through the Web, while e-commerce consists in selling through the Web. As Table 8 shows, the development sequence differs somewhat by quadrant.

TABLE 8: SEQUENCE OF DEVELOPMENT PHASES BY QUADRANT

	Quadrant 1 Balanced businesses	Quadrant 2 Diversified businesses	Quadrant 3 Bold businesses	Quadrant 4 Ambitious businesses
Integration of management processes	Polar Plastic ¹ GLP Hi-Tech ¹ Moules Industriels ¹ Impression Paragraph ²	Coopsco ² RECF ¹	ICGQ-Airesys ¹ Constructware ¹ Comviatel ³	ECCnet ²
E-procurement	Impression Paragraph ³ Revue Gestion ²	Coopsco ³ ACQ ¹	ICGQ-Airesys ² Constructware ² Comviatel ²	ECCnet ¹
E-commerce (information- based or transactional)	Impression Paragraph ¹ Auberge de La Fontaine ¹ La ferme Martinette ¹ Revue Gestion ¹ Moules Industriels ² GLP Hi-Tech ² Colibri Tours ¹ Polar Plastic ² Caractéra-Neomédia ¹	Coopsco ¹	ICGQ-Airesys ³ Constructware ³ Comviatel ¹	ECCnet ³ Bonjour Québec ¹

Legend: 1, 2 and 3: correspond to the implementation sequence in respect of technological solutions.

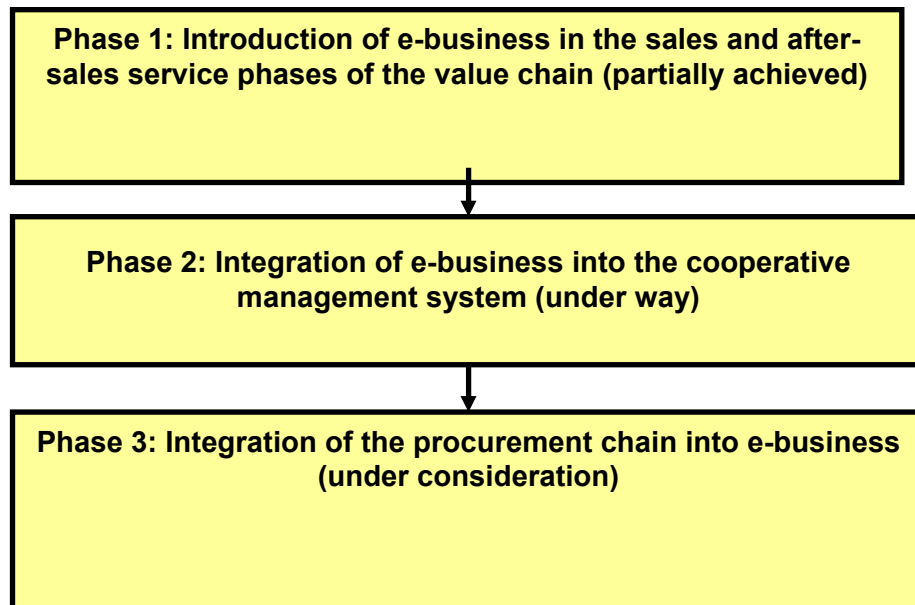
Among the businesses in quadrant 1, the development phases are, *a priori*, linear and sequential, although this development often stems from a process of trial and error. Indeed, these phases and, more specifically, those that concern e-procurement and e-commerce, result from significant experimentation, emerging processes and the small-scale creation of prototypes. Development in the businesses in this quadrant is circular in that improvements are made to their functionalities annually or even every two or three years when their Web sites are modified, depending on the business. In the case of the Auberge de La Fontaine, the owner became interested in the Internet in 1996 in order to broaden his clientele, although it was not until 1998 that the initial version of the Web site was launched. In 2000, a new version offering more complete information was set up. At the same time, a database and a pricing system based on yield management were elaborated.

Furthermore, it should be noted that some businesses in quadrant 1 perceive as unlikely or remote the shift to certain development phases or stages since either their customers or their suppliers are not ready for them.

Among the businesses in quadrant 2, the development phases are distinguished by a formal project management process and a technical rationality specific to the functioning of associations or sectoral groups. The political facet and communications play a key role. Once Coopsco had convinced school cooperatives of the project's importance and obtained their consent, EB was introduced into the sales and after-sales service phases of the cooperatives' value chain. Indeed, Coopsco's main objective was to ensure that presence on the Web of member cooperatives in the same way as Amazon.com and Archambault.ca, in order to preserve their clientele.

EB was subsequently integrated into traditional business operations. Coopsco is working with TELUS, its technological partner, to integrate the Web into the order and inventory management system. The third phase of development is at the project stage and will consist in integrating the procurement chain into EB. Diagram 7 illustrates these development phases.

DIAGRAM 7: EB DEVELOPMENT PHASES AT COOPSCO



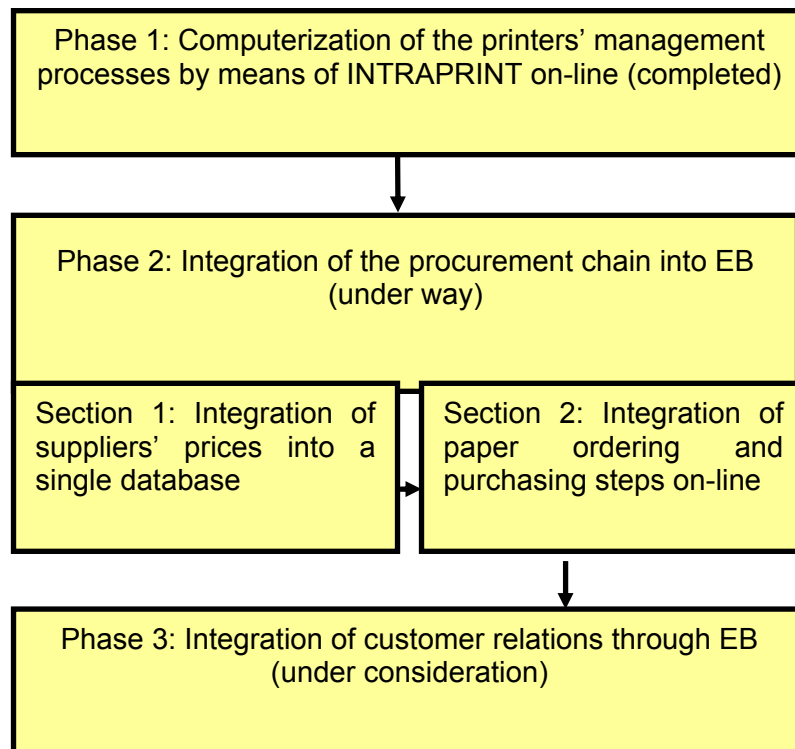
The development phases among the bold businesses in quadrant 3 are characterized by frequent interaction with partners and require significant adjustments along the way.

In the case of the ICGQ, the main objective was to help SMEs adopt e-commerce to enhance their customer relations. The project began in 1998, although EB issues were not very clearly defined at that time. The very definition of e-commerce was vague among printers. However, integration between suppliers and printers afforded a good opportunity to simplify modes of operation and thus improve the printers' efficiency (integration of the procurement chain). Once the project's direction had been established, the three phases indicated below were carried out.

1. The first phase of the project consisted in computerizing the printers' management systems. It was necessary to find a reliable, flexible technological supplier, a task that was difficult for the ICGQ, which had to turn to Europe,

- where it established a partnership with Airesys Inc., especially because of the latter's openness and flexibility.
2. The second phase of the project, now under way, consists in integrating the procurement chain by means of EB. This phase comprises two sections, the first one devoted to integrating suppliers' prices into a single database and the second one, to integrating the paper ordering and purchasing stages on-line.
 3. The third and final phase of the project, still under consideration, consists in integrating customer relations by adopting e-commerce, although each printer will maintain its particular customer relations. Diagram 8 indicates these development phases.

DIAGRAM 8: EB PROJECT DEVELOPMENT PHASES FOR THE ICGQ-AIRESYS PARTNERSHIP



The businesses in quadrant 4 rely primarily on a communalization process and complex socio-political processes accompanied by periods or plateaus that play a critical role. Bonjour Québec.com has undergone several formal, detailed development phases. In particular, a number of studies focus on the administrative and technological facets of the project. Moreover, the establishment of the partnership between Bell Canada and Tourisme Québec took nearly 18 months, during which several meetings were held in order to structure and establish an innovative operating method that satisfies both parties.

Bell Canada subsequently appointed four subcontractors, none of which is part of the current project, to act as the project's principal contractors. Indeed, these suppliers were unable to meet the deadlines and requirements of the project and to cope with the uncertainty surrounding it. However, Bonjour Québec.com benefited from the technological enhancements already made at Travellinks. This concept, despite its many limitations, has enabled Bell Canada to develop solid core skills and to take advantage of a learning curve suited to the development of Bonjour Québec.com.

To conclude, there are usually two main development strategies in EB:

- The first strategy consists in emphasizing e-commerce, then in integrating the management of business processes, followed by procurement. In this first instance, the logic followed is to quickly establish a presence on the Web in order to preserve and even expand market share. This strategy is mainly adopted by service and commercial firms, above all those whose products can be easily *digitized*.
- The second strategy consists in emphasizing the automation of business processes, then in integrating e-procurement, followed by e-commerce. In the second instance, the logic followed is that customer service relies on the efficacy of production processes. This strategy is adopted in the manufacturing sector, although in certain sectors such as plastic processing the question of e-procurement arouses little interest among firms in the sector.⁹

However, in the long term, as is true in the printing sector, on-line procurement will make it possible to enhance the efficiency of SMEs and thus improve the quality of customer service.

⁹ Some structural elements in the sector explain why this is true. Despite their size and limited number, Canadian resin producers do not appear to have embraced EB. Moreover, plastic processors, mainly SMEs, appear to be satisfied with their way of doing business with their suppliers, although the prices paid seem high.

3.2 How should an EB-related change be effectively planned?

This section examines two facets of EB planning: the strategic planning mode and the choice of technological solutions. More specifically, it answers two questions:

- What strategic planning mode are businesses adopting?
- On which technological solution procurement models are they relying?

3.2.1 Which strategic planning mode are businesses adopting?

Among the balanced businesses in quadrant 1, the EB project usually stems from the strategic vision of the owner-manager, who champions the project to ensure its success by joining forces, if need be, with individuals who have adequate technical skills. At *Revue Gestion*, the electronic journal strategy stems from strategic planning, one of whose objectives was to increase the journal's readership while ensuring self-financing. The development of an electronic journal was obviously an innovative, relevant solution. As the journal's director has the necessary technical skills, he acted as project manager by developing the logical model and overseeing the programmers' work.

The EB projects of the diversified businesses in quadrant 2 usually rely on a master plan stemming from a consensus between the project manager and the business partners. In this perspective, Coopsco and the RECF presented the project and convinced their business partners of the importance of EB. Once the businesses had obtained project financing, they had to design a flexible product adapt to each one's needs in order to receive the backing of the business partners overall. In these cases, participants continue to rely on the ripple effect engendered by the success achieved by certain partners, which are in a position to convince the most recalcitrant among them and attract new partners.

The bold businesses in quadrant 3 often resort to emerging approaches stemming from a need expressed by the sector. For example, the strategy to develop the ICGQ-Airesys partnership arose from the observation that the management of internal processes was a widespread weakness among SMEs in the printing sector.

The ambitious businesses in quadrant 4 often result from partnerships between industrial associations, interest groups and governments. Under the circumstances, the strategic planning process starts with a mandate assigned by a government or government agency. The process is formal and involves substantial investments. ECCnet is a good example.

3.2.2 On which technological solution procurement models are they relying?

Two dimensions allow us to categorize the technological solution procurement models, i.e. the availability of resources and skills, and strategic value. Diagram 9 indicates various technological solution procurement models, and Diagram 10 classifies businesses by model.¹⁰

DIAGRAM 9: TECHNOLOGICAL SOLUTION PROCUREMENT MODELS

		Availability of resources and skills	
		Low	High
Strategic value	High	Partnership Join forces with an external partner (a consultant or service provider) possessing the missing expertise to develop the future information system.	Preservation Develop the future system entirely in-house.
	Low	Outsourcing Have an outside supplier develop the systems (or use the systems of an outside supplier).	Recovery Develop information systems by sharing the development effort with certain competing businesses or by marketing an application developed by the business.

Adapted from Roy and Aubert, "Valeur stratégique, compétences clés et développement technologique" in *Revue Gestion*, Vol. 28, No. 1, Spring 2003, page 33.

Businesses that decide to establish partnerships (see Diagram 10) usually seek to join forces with an outside partner (a consultant or service provider) possessing the missing expertise to develop their future information system. This supplier nonetheless undertakes to transfer certain knowledge to the businesses' customers since the latter also offer them the possibility of becoming familiar with the functioning of a specific sector. In this situation, a genuine partnership is established.

The objective of preservation is to develop the system entirely in-house. Businesses that choose this procurement model have the necessary internal skills (or acquire such skills) in order to carry out their EB project, which usually has high strategic value.

As Diagram 10 indicates, businesses that have selected preservation are found, by and large, in quadrant 1. At the outset, the firms have modest ambitions and the initial versions of their sites are often technically straightforward, thus allowing for in-house development and learning. However, the Web sites often do not have significant

¹⁰ We have noted in our study that businesses are not classified automatically according to the grid proposed in Diagram 9. A number of businesses have chosen technological solutions that coincide with those adopted by businesses in which EB has high strategic value, even though the strategic value of EB seems low.

strategic value. On the other hand, the adoption of any other form of EB remains important, in the same way as the telephone and fax. The cases of Caractéra-Neomédia (quadrant 2) and Constructware (quadrant 3) are more closely aligned to the model in Diagram 9 since these businesses deem EB to be of very high strategic value.

DIAGRAM 10: TECHNOLOGICAL SOLUTION PROCUREMENT MODELS CHOSEN

<p>Partnership</p> <ul style="list-style-type: none"> - ICGQ -Airesys-development (3) - Bonjour Québec.com-development (4) - Coopsco (2) 	<p>Preservation</p> <ul style="list-style-type: none"> - Impression Paragraph (1) - Colibri Tours (1) - Moules Industriels (1) - Polar Plastic (Web site) (1) - Caractéra-Neomédia (2) - Auberge de La Fontaine (1) - Constructware (3)
<p>Outsourcing</p> <ul style="list-style-type: none"> - La ferme Martinette (1) - ECCnet (4) - ACQ (2) - Polar Plastic (EDI) (1) - GLP Hi-Tech (1) - RECF (2) 	<p>Recovery</p> <ul style="list-style-type: none"> - Revue Gestion-operation (1) - Bonjour Québec.com-operation (4) - ICGQ-Airesys-operation (3)

Note: The businesses' respective quadrants are indicated in parentheses.

The objective of outsourcing is to delegate to an outside supplier the development of information systems. When the strategic value and expertise of in-house resources are low, outsourcing is a logical solution. GLP Hi-Tech preferred to hire a consulting firm to develop its Web sites as it did not have the necessary in-house skills. It was less costly to proceed in this manner. Similarly, in response to an e-commerce request from one of its major customers, in 1997 Polar Plastic decided to outsource this function with EDI Gateway. This service provider leases a shared electronic mail box accompanied by a X-12 EDI document translation service, the format used in the food industry. Since then, Polar Plastic has continued to outsource its information-based relations with some of its domestic customers, using EDI Gateway's Webgate.

Recovery is another way of doing business that makes it possible to make profitable investments in EB, through one of several approaches. The first approach consists in having several businesses share development costs. The ICGQ-Airesys partnership made it possible to offer to all printers a flexible application in ASP mode at a fraction of the normal acquisition cost. The ICGQ believes that the break-even point is 12 printers (customers). The second approach consists, instead, in marketing an application developed by the business. In order to recover part of its investment in the development of its Web site, Revue Gestion offered content hosting to other journals that do not compete with it.

3.3 How can performance be measured and relevant indicators identified?

Generally speaking, there are few formal performance measurement and follow-up processes, even though the cases studied often highlight concerns in this respect. Several of the managers questioned mentioned that, in the medium term, it will be necessary to measure the performance of EB and, consequently, to develop new indicators.

At present, although the indicators used are few in number and hardly sophisticated, they differ depending on the classification of businesses. Businesses in quadrants 1 and 3 emphasize the profitability of transactions, while those in quadrants 2 and 4 focus instead on the quality of relations with their customers and their business partners.

Some balanced businesses (quadrant 1) measure performance by means of the volume of additional business that EB brings them, e.g. GLP Power, while other firms, such as the Auberge de La Fontaine, Revue Gestion and Colibri Tours, rely both on the volume of additional business and the savings achieved. The Auberge de La Fontaine measures the success of its site by the percentage increase in customers, i.e. 30% during the past year. Some 24% of the new customers discovered the inn on the Internet. Of these new customers, 49% were from the United States, 42% from Canada and 3% from France. Moreover, 52% of the new customers directly accessed the aubergedelafontaine.com site, 9% relied on the bonjourquebec.com reservation centre, and the remainder visited 50-odd sites on which the inn is registered. It should be noted that the inn is registered on over 300 sites and that its EBM enabled it to recover its investment in a short time, i.e. between six and eight months.

This initiative also made it possible to increase revenues through cyberpromotion in order to attract last-minute customers who are more sensitive to price by offering 30% to 40% discounts off the regular rate. The Internet, including old and new customers, generates 19.6% of all reservations, 20% of the nights sold, 22% of room revenues and earned revenue per room is 10% above the annual average, i.e. \$169 as against \$153.

The model has made possible substantial savings with respect to advertising and promotion. Expenditures on advertising in directories and magazines were significant and were almost completely eliminated. Previously, the inn mailed between 1,000 and 1,500 brochures per month.

The development of its electronic journal enabled Revue Gestion to increase revenues by over 25%, especially by means of electronic corporate subscriptions offered to businesses and associations. This business-to-business (B2B) approach contrasts with the business-to-consumer (B2C) approach traditionally adopted by the journal. It made it

possible to increase the number of subscribers by 2,500 to over 23,000 within one year without any special promotional effort, while significantly reducing administrative costs since one customer can represent 12,000 subscribers. At the same time, given that printing and shipping account for 65% of a journal's costs, it was possible to offer an electronic subscription at a much more affordable price than the printed version and thus gain access to a potentially much broader clientele.

Business in quadrant 2, such as the ACQ, the RECF and Coopsco, assess their performance in light of the quality of relations with their customers and partners, the maintenance of their competitive position, and traffic on their Web sites. Performance criteria focus on the degree of partners' adherence and satisfaction, market share, and the volume of transactions.

For example, the ACQ measures its success by the number of its projects, which stands at 2,500, compared with that of Metropolitan Toronto, which totals a maximum of 1,000 projects. Other plans libraries in Canada assemble, on average, between 300 and 600 projects per year. The ACQ's virtual plans library is on-line 24 hours a day and allows business users to achieve between 30% and 40% savings annually. The library contributes to reducing on average by 40% the number of trips to a plans library.

As for the RECF and Coopsco, they are especially interested in traffic on their Web sites. The volume of sales and also the categories of products purchased on-line are also key performance indicators. For example, since theatre and poetry have been available on-line, the RECF has noted somewhat higher sales in these categories. It is clear to the executives that, without the site, these more or less profitable cultural products would probably not have been offered through the printed catalogue while the Internet allows for visibility at low cost and a considerably wider array of products offered.

Businesses in quadrant 3 (Constructware, ICGQ-Airesys and Comviatel) measure their performance in light of transactions by relying, in particular, on self-financing for each of the exchanges.

Constructware measures its success in light of its exponential growth. At the end of 2000, Constructware had over 400 customers and revenues of US\$3.2 million. In 2001, it had over 2 million users on-line and had sold over 20,000 licences. In the first quarter of 2001, Constructware concluded its biggest contract, worth \$4.1 million, with one of the leading construction firms in the southern United States. Following this increase in financial resources, Constructware executives hired more specialized staff. The Constructware team grew by 40% in the first quarter of 2001. That same year, the company received an award from *Showstopper* magazine for the quality of its engineering and began another period of remarkable growth. The ICGQ did not set any precise targets but evaluates the success of its project with Airesys in light of the following criteria:

1. acceptance of the project by printers and paper suppliers;
2. growth in the number of users of the software. In October 2002, there was only one user and eight months later, in June 2003, there were six. The break-even point was set at 12;
3. the satisfaction of INTRAPRINT software users.

Businesses in quadrant 4, such as ECCnet and Bonjour Québec.com, measure their performance in light of relations with their partners, which they deem to reflect the system's strategic capacity, market share and customer satisfaction. Conditions pertaining to the short payback period or Web traffic are influenced, in particular, by advantageous oligopolistic structural conditions.

Bonjour Québec.com measures its success by means of numerous criteria, including Web traffic. It exceeds by far its two Canadian competitors, BC Tourism and Travellinks. In March 2002, over 700 businesses were registered on the Bonjour Québec.com site and more than 250 vacation packages were also offered to tourists the world over. Bonjour Québec.com reached between 8.5 million and 9 million visitors, over 2 million of them in July 2003 alone. In comparison, BC Tourism reaches not more than 3 million to 5 million travellers annually, while the Ontario portal only distributes information without enabling users to make reservations. Some 37% of the travellers reached by Bonjour Québec.com come from Québec, 33% from the United States, 17% from the rest of Canada, and 13% from abroad. Bonjour Québec.com has even surpassed the American Automobile Association (AAA) as a source of travel cross-referral in the US.

In December 2002, Tourisme Québec received two Boomerang awards for its Bonjour Québec.com at the awards ceremony, in recognition of the work of the interactive communications industry in Québec. Tourisme Québec and Bell Canada also received the award for the best Web site at the 26th Turin Tourism Film Festival in May 2002. The world's best tourism Web sites compete at this prestigious festival.

3.4 What are the challenges and future prospects in the realm of EB?

Among the balanced businesses in quadrant 1, the customer-based approach and the strategic vision predominate, followed, to a lesser extent, by innovation and in-house expertise. The Auberge de La Fontaine developed a customized (one-to-one) marketing system aimed at grouping together independent hotels throughout Québec. This initiative sought to generate Web traffic and pool a database that allowed for customized offers.

An initial approach led to the grouping of 15 hotels, although only two of them were truly ready and possessed a database and a Web site that allowed them to receive customized electronic offers. In the near future, the management of the Auberge de La Fontaine wants to enhance, above all, response time to customer requests.

The challenges facing La ferme Martinette rely on innovation and the broadening of its range of products. It would like to use adapted, innovative marketing tools. The diversified businesses in quadrant 2 mainly rely on master plans and emphasize the importance of awareness campaigns, communication and financial assistance. Despite the success of the Coopsco portal, several challenges must still be met, i.e. convince all small cooperatives of the need for an on-line transactional site and to integrate EB into their management systems. The challenge facing the RECF is to attract greater numbers of publishers and enhance support for current users. The ACQ must define a rate structure. The success of the virtual plans library has exceeded expectations. However, it is hard to implement a rate structure among a majority of businesses with fewer than five employees, which are highly sensitive to the price of services. The portal hopes to become the industry gateway by adding new functionalities and establishing partnerships with telecommunications, materials and equipment services suppliers, prime contractors and investment enterprises.

The businesses in quadrant 3 are noteworthy for the emerging approaches they adopt and a greater variety of challenges to be met, e.g. the customer-based approach, expertise, involvement and commitment. Constructware has sought to continue to maintain the level of expertise of its staff. What was initially a project that made it possible to provide the best technological solutions was transformed into a company supplying software that facilitates project management and fosters better collaboration between partners in the commercial construction sector in the United States.

In the case of ICGQ-Airesys, it is important to increase the number of printers who wish to integrate INTRAPRINT software as it is thought that the computerization of their processes will appreciably alter their business practices. SMEs are also being encouraged to use several functionalities of INTRAPRINT, e.g. the calculation of several ratios that the SMEs do not yet know how to use.

Comviatel is seeking to increase its market share in order to reach a critical size at which it can achieve a minimal efficiency threshold and take advantage of economies of scope and network economies. Greater numbers of buyers will lead to greater numbers of producers. At present, Comviatel management is seeking, above all, to establish a critical mass in different regions of Québec before it penetrates the Ontario market.

Among the businesses in quadrant 4, expertise and the quality of partnerships make it possible to contemplate worthwhile future prospects. For Bonjour Québec.com, it is a question of offering the other provinces and regions in the industrialized nations its experience in the development of destination management systems. The objective is also to host the reservation sites of regional organizations while enabling them to preserve their identity.

Bonjour Québec.com already offers 55 sites to organizations such as regional tourism associations in order to make reservations. These reservation sites are transparent and travellers do not know that they are reserving with Bonjour Québec.com (they think they are reserving through a regional tourism office). The reservation sites will round out Bonjour Québec.com's development. Several agreements are being negotiated with regional and sectoral stakeholders. One of the challenges to be met by ECCnet consists in accelerating the consolidation of SMEs as the suppliers of big retail networks. Despite the growth of small, specialized niches, such as products that satisfy specific tastes at the regional level, the ECCnet electronic initiative offers incentives to encourage SMEs to group together in order to broaden the range of products offered to large retail trade chains. ECCnet would like to transpose the model from the food sector to the entire retail trade sector.

Diagram 11 indicates the challenges and future prospects in respect of the quadrants.

DIAGRAM 11: CHALLENGES AND FUTURE PROSPECTS*

		Strategic scope	
		Narrow	Broad
Degree of innovation	Traditional model	<p>Balanced businesses</p> <ul style="list-style-type: none"> ■ Customer-based approach (5) ■ Vision (2) ■ Innovation (2) ■ In-house expertise (2) ■ Partnership (suppliers) (1) 	<p>Diversified businesses</p> <ul style="list-style-type: none"> ■ Customer-based approach (2) ■ Awareness and communication (2) ■ Financial assistance (2) ■ Most widespread technological standard (1) ■ Independence (1)
	Revolutionary model	<p>Bold businesses</p> <ul style="list-style-type: none"> ■ Customer-based approach (3) ■ Expertise (2) ■ Involvement and commitment (2) ■ Vision (1) ■ Technological standards (1) ■ Quality of partnership (1) ■ Complexity (1) ■ Awareness and communication (1) 	<p>Ambitious businesses</p> <ul style="list-style-type: none"> ■ Expertise (2) ■ Quality of partnership (1)

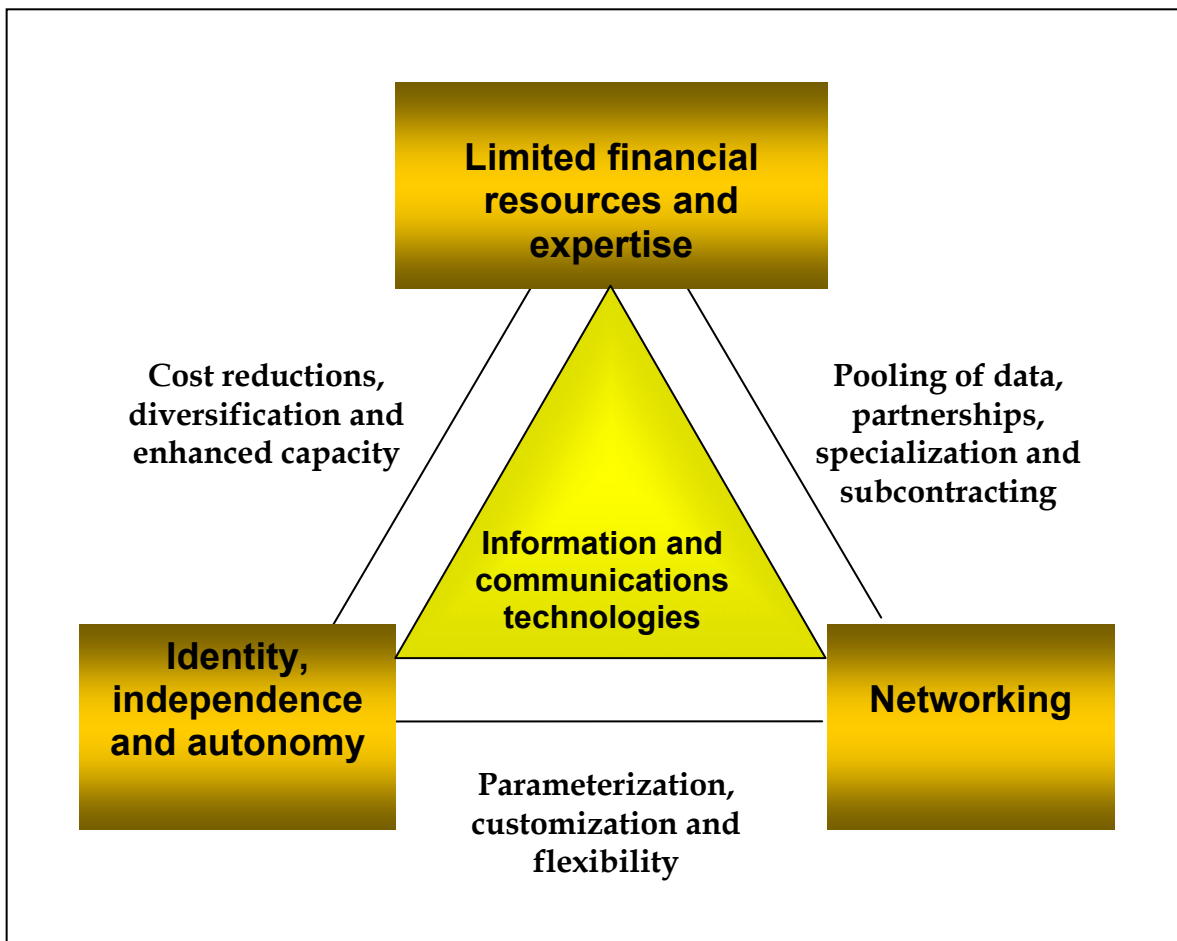
* The figures in parentheses indicate the number of times the element was mentioned by the managers interviewed.

Conclusion

What are the key EB issues facing Canadian SMEs?

Generally speaking, all of the Canadian SMEs in six industry sectors covered by this research find themselves in the same position. They have limited financial and human resources to develop the technological solutions that will enable them to reduce operating costs, bolster capacity and diversify their range of products and services. To do so, they must collaborate with other businesses, their associations, suppliers, customers and governments in order to take advantage of significant economies of scale, pool resources and enhance their market and product breadth.

DIAGRAM 12: EB ISSUES FACING CANADIAN SMEs



However, any initiative in this regard will only succeed if the SMEs are able to preserve their identity, independence and autonomy by using parameterable, flexible, and

customizable applications. For example, Coopsco preferred to offer its members applications that each cooperative can customize and use according to its needs instead of developing a general portal offering a single service outlet for all school cooperatives. While the solution that the RECF adopted is less sophisticated, it also attempts to reflect this need for autonomy and independence by offering participating publishers a specific commercial space on the association's site. The first generations of business places intended for SMEs neglected this especially important facet from the standpoint of sales and distribution. However, with regard to procurement, these considerations are less important insofar as the SMEs are primarily seeking to achieve savings. Diagram 12 indicates the key issues in EB for Canadian SMEs.

What are the specific issues of each quadrant?

If we go beyond these general conclusions, Table 9 reveals that the issues pertaining to each category of business, i.e. balanced, diversified, bold or ambitious, are different. For example, balanced businesses lack resources, usually have at their disposal a barely developed network but are fiercely determined to preserve their identity and autonomy, while the opposite is true of ambitious businesses.

TABLE 9: ISSUES OF EACH QUADRANT

	Financial resources	Expertise	Networking	Identity, independence and autonomy of SMEs
<i>I. Balanced businesses</i>	Low	Low	Low	Very high
<i>II. Diversified businesses</i>	Medium to high	Low to medium	Medium to high	Low to medium
<i>III. Bold businesses</i>	Low to medium	Very high	Medium to high	Medium
<i>IV. Ambitious businesses</i>	High	Medium to high	High	Very low

What are the specific needs of each industry sector?

As Table 10 shows, the needs of Canadian SMEs vary according to industry sector. For example, SMEs in the printing sector must optimize their in-house processes and procurement before engaging in e-commerce. Among businesses in the tourism industry, networking and marketplaces are essential to ensure maximum visibility. In the publishing sector, SMEs need, above all, parameterable, customizable, affordable applications.

TABLE 10: NEEDS OF EACH INDUSTRY SECTOR

	Optimization of in-house processes and procurement	Presence on the Web	Importance of networking	Virtual community, marketplace	Parameterable, customizable applications
<i>Plastic processing</i>	High	High	Very high Collaboration with customers	Medium Virtual community	High
<i>Printing</i>	Very high	High	High	Medium Virtual community	High
<i>Publishing</i>	Medium	Very high	Medium Bank of titles	Low	Very high
<i>Agri-food (niche products)</i>	Medium	Very high	Very high	Very high Marketplace	Very high
<i>Tourism</i>	Medium	Very high	Very high	Very high Marketplace	High
<i>Construction</i>	High	Medium	High Between trades	High Virtual community	Medium

What general observations apply to each quadrant?

Diagrams 13A and 13B indicate the current position of businesses. Until now, media attention and EB development efforts have been concentrated, above all, in quadrant 4 (ambitious businesses) and occasionally in quadrant 2 (diversified businesses). The objective of most of the stakeholders was to control the market by means of marketplaces and e-malls. However, it turned out that the development of the tools found in this quadrant ran counter the SMEs' need for identity, independence and autonomy, which explains the failure of several portals.

DIAGRAM 13A: CURRENT SITUATION FOR BALANCED AND DIVERSIFIED BUSINESSES

		Strategic scope	
		Narrow	Broad
Degree of innovation	Traditional model	<p>Balanced businesses</p> <p>They are less attractive from a technological standpoint but include most Canadian SMEs.</p> <p>Objectives: Enhance the efficiency of processes and remain competitive</p> <p>Limitations: A number of businesses in this quadrant still do not have a clear vision of e-business's potential. Many of them have still not automated their business processes, a major obstacle to the adoption and integration of EB in their firms.</p> <p>Major stakeholders: The majority of Canadian SMEs that take charge of their own e-business development</p>	<p>Diversified businesses</p> <p>They have encouraged some of the most significant efforts to develop EB.</p> <p>Objective: Structure the market through collaborative e-mall platforms or common electronic storefronts</p> <p>Limitations: The first generations ran counter to the needs of SMEs and usually proved to be rigid.</p> <p>Major stakeholders: Business groups and certain large suppliers of services</p>

In this perspective, the applications developed by businesses in quadrant 3 (bold businesses) and by certain businesses in quadrant 2 (diversified businesses) seem more promising for Canadian SMEs insofar as these applications are parameterable and customizable. Such applications must reflect the obvious need for autonomy among SMEs while facilitating partnerships, reducing risk, and taking into account resource constraints through applications in ASP mode. Associations, interest groups and parapublic organizations, in partnership with the private sector, sometimes take the initiative to develop innovative applications that meet the needs of SMEs in their industry sector.

DIAGRAM 13B: CURRENT SITUATION FOR BOLD AND AMBITIOUS BUSINESSES

		Strategic scope	
		Narrow	Broad
Degree of innovation	Revolutionary model	<p>Bold businesses</p> <p>They seem more promising for Canadian SMEs.</p> <p>Objective: The applications developed are usually parameterable and customizable, thus reflecting SMEs' need for autonomy, facilitating partnerships, reducing risk, and taking into account resource constraints through applications in ASP mode.</p> <p>Limitations: Financial resources and expertise</p> <p>Major stakeholders: Associations, interest groups and parapublic organizations, in partnership with the private sector, sometimes take the initiative to develop innovative applications that meet the needs of SMEs in their industry sector.</p>	<p>Ambitious businesses</p> <p>They have aroused media attention and encouraged the most important efforts to develop EB.</p> <p>Objective: Control the market by means of marketplaces</p> <p>Limitations: The tools often ran counter to the SMEs need for identity, independence and autonomy, which explains the failure of several portals.</p> <p>Major stakeholders: Commercially-based conglomerates, large business customers or suppliers of SMEs</p>

Even though, from a technological standpoint, the EBMs of the businesses in quadrant 1 (balanced businesses) are less attractive, it should be noted that this quadrant encompasses the majority of Canadian SMEs that take charge of the development of EB.

However, our research¹¹ has shown that a number of businesses in this quadrant do not yet have a clear vision of EB's potential. Moreover, many of them have not yet automated their business processes, which is a key obstacle to their adoption and integration of EB.

What assistance can be offered to businesses in each EBM category?

Whether businesses are balanced, diversified, bold or ambitious, they have specific needs. As Diagram 14 shows, several solutions can be contemplated in respect of each quadrant. Balanced businesses must be able to develop original, economical

¹¹ We include in this observation the findings of previous research but that is in keeping with the "New Electronic Business (E-Business) Models and Small and Medium-Sized Enterprise (SME) Development" project.

technological solutions that ensure them the broadest possible visibility. The Auberge de La Fontaine and Revue Gestion are clear examples.

DIAGRAM 14: NEEDS AND POTENTIAL SOLUTIONS OF EACH QUADRANT

		Strategic scope	
		Narrow	Broad
Degree of innovation	Traditional model	<p>Balanced businesses</p> <p><i>Needs:</i> Facilitate access to and the use of Web resources</p> <p><i>Solutions:</i></p> <ul style="list-style-type: none"> ▪ Facilitate networking ▪ Ensure visibility (search engines, language, shipping capacity) ▪ Foster creativity in the differentiation of products and services on the Web ▪ Propose affordable, parameterable, customizable generic tools suited to the needs of SMEs 	<p>Diversified businesses</p> <p><i>Needs:</i> Ensure independence and respect for trades</p> <p><i>Solutions:</i></p> <ul style="list-style-type: none"> ▪ Foster communication and consultation to respond to the specific needs of groups of SMEs ▪ Ensure the flexibility of the tools developed ▪ Promote initiatives that favour large numbers of SMEs
	Revolutionary model	<p>Bold businesses</p> <p><i>Needs:</i> Foster the development of innovative applications adapted to the needs of Canadian SMEs</p> <p><i>Solutions:</i></p> <ul style="list-style-type: none"> ▪ Foster the awarding of major contracts to promising SMEs ▪ Support development and marketing 	<p>Ambitious businesses</p> <p><i>Needs:</i> Ensure socio-political legitimacy</p> <p><i>Solutions:</i></p> <ul style="list-style-type: none"> ▪ Encourage concerted action between governments, industry sectors and businesses ▪ Ensure convergence toward a common standard ▪ Seek a consensus acceptable to all parties

Through groups of businesses and sectoral associations, for example, diversified businesses can satisfy the needs of Canadian SMEs in their industry sector by developing the appropriate applications. In this way, they can enable participating SMEs to take advantage of the economies of scale stemming from such initiatives. The cases of the RECF and Coopsco clearly illustrate this situation.

Bold businesses are also well placed to satisfy the needs of Canadian SMEs. However, we must afford them an opportunity to develop their expertise by granting major contracts that will finance the development of relevant applications instead of relying on big, long-established consulting firms. For example, the ICGQ took advantage of substantial grants from Canada Economic Development to develop, in partnership with Airesys, an application that satisfies the specific needs of SMEs in the printing industry.

When ambitious businesses succeed in ensuring socio-political legitimacy, they are able to help their industry structure itself, thus enhancing the competitiveness of the industrial sector overall. The cases of ECCnet and Bonjour Québec.com are representative examples of the potential of ambitious businesses.

To conclude, each category of business has specific needs to which specific solutions apply. Generally speaking, businesses belonging to the four quadrants are found in each industry sector. However, while the number of businesses in each quadrant varies from one industry sector to the next, the businesses, whether they are balanced, diversified, bold or ambitious, have their *raison d'être* and require adequate support to ensure the harmonious development of EB in their industry sector and thus bolster the competitiveness of Canadian SMEs.

Appendix 1: Enterprises Classification

Balanced businesses

The first quadrant comprises so-called balanced businesses, i.e. traditional firms that are converting cautiously to EB. The business models of these businesses rely on specialization or limited diversification by capitalizing on the firm's skills or trade (entrepreneurial niche or productive function in its sector) to face competition from EB. For example, this is the case of discounters such as Dell or Schwab, whose EB practices do not conflict with the traditional business model insofar as the business's trade remains the same.

Moreover, balanced businesses deem EB to be an economic lever that enables them to strengthen their strategic position. These businesses emphasize control, integration and visibility. From the standpoint of performance, they seek to maintain or increase their comfortable gross margins and to maintain or increase the perceived value of products and services while enhancing the efficacy and efficiency of business processes. Under the circumstances, they tend to favour the following technological solutions: integrated management systems, promotional or transactional Web sites, and navigation tools to search for products and services.

However, balanced businesses find it hard to protect themselves against the risks stemming from radical technological change likely to call into question their strategic skills. Technological investments not directly linked to their trade imply high risks, above all when these businesses do not master the technical facets of technology. The returns on these investments are insufficient or even negative. Decisions related to technology used in conjunction with EB can even become suicidal for this type of business.

Diversified businesses

This group comprises businesses for which the conversion to EB centres on external positioning measured by growth in and the diversification of operations. The EBMs that these businesses adopt seem especially useful in sectors where markets are already structured. Indeed, the models developed take into account existing competition rules and growth potential encourages the firm to diversify its operations. Moreover, similar competition rules that apply both to EB and traditional markets facilitate the management of diversified businesses.

However, the businesses in this group are less well prepared to operate in emerging markets where the rules of the game are still being defined. This is true of numerous emerging EB industry sectors whose business models are at the experimental stage. Moreover, diversification in EB can cause in these businesses major conflicts with respect to trade, distribution and procurement that require management skills.

However, successful diversified businesses know how to seize opportunities for growth and diversification. They tend to emphasize control over distribution and procurement. More specifically, they seek to diversify themselves in promising electronic markets, pursue vertical integration (suppliers and distributors) by electronic means, and develop horizontal diversification by increasing the firm's average return through higher sales and the achievement of economies of scale. These businesses adopt technological solutions of the e-shop or e-mall variety or solutions suited to the integration of the value chain through special partnerships.

Bold businesses

The businesses that are deemed to be bold adopt EBMs that are innovative but that are always centred on their core strategic skills. Their strategic scope is narrow, although they are striving to pursue aggressive growth that outstrips growth on the market. Bold businesses go for experimental, innovative EBMs whose durability has yet to be demonstrated, as the failure rate of dotcoms attests.

These emerging bold businesses are often start-ups that have come to symbolize the new economy. The EBMs of these businesses are, by their very nature, innovative. They do not rely on widespread business practices as is the case for traditional businesses operating in a stable market environment. The technological solutions that these businesses adopt rely on extensive recourse to the Web and make relatively little reference to the business's traditional operations, when such operations exist.

Generally speaking, these businesses adopt complex technological solutions such as collaborative portals, e-auctions and sophisticated search engines.

Ambitious businesses

The fourth group comprises businesses whose EBMs are also innovative, while focusing on diversification and growth in operations.

The strategic objective underlying the implementation of EBMs in this group is to dominate the market or a segment of it through the imposition of a technological standard or commercial practice and to systematically control an electronic option. Among businesses whose strategy relies on these business models, "locking" the market through high transfer costs, especially by means of the implementation of technological standards, is a basic manoeuvre. To this end, ambitious businesses attempt to structure the market using portals (electronic marketplaces). New arrivals in an industry sector create independent, neutral portals while players that are already well-established participate in marketplaces often by joining forces with their competitors. Be that as it may, ambitious businesses usually invest heavily in their technological infrastructure.

Indeed, the implementation of these business models calls for the establishment of technological standards that require substantial investments whose payback periods are often much longer than anticipated and switching costs, substantial. For example, AOL's disappointing results show that the adoption of such a business model implies heavy investment and also leads to later entry in the market than is the case for businesses centred on their strategic skills.

Since ambitious businesses are seeking, above all, to structure and control an external network of electronic alliances, the volume of transactions becomes an especially important measurement for such firms. They are often prepared to tolerate small profit margins in order to achieve a bigger volume of transactions and implement a price-discrimination policy. Ambitious businesses must closely monitor their market share while making profitable in the medium term their sunk costs. To this end, they must maximize the use of the technological and commercial standard that they propose.

Under the circumstances, the technological solutions usually favoured by ambitious businesses are horizontal and vertical electronic marketplaces and virtual communities.

Appendix 2: Case studies technical fact sheets

Organization: Association de la construction du Québec (ACQ)
Sector: Construction
Category of business: Diversified business
Brief description: Through its network, the Association de la construction du Québec offers network members numerous services, including plans libraries, a construction project telecommunications service, information on tender calls, standardized contracts and forms, specialized publications, seminars and training courses, consulting services for entrepreneurs, group insurance programs, group purchasing discounts, an array of residential guarantee plans, social activities that promote business meetings, and so on.
E-business: The most important functionality is a digitized plans library that adds a functionality to the traditional services offered to entrepreneurs. The plans library offers a user-friendly function since the plans are available 24 hours a day. It is part of a more comprehensive development process aimed at facilitating a shift in the industry to one in which workflows between professionals, entrepreneurs and subcontractors are integrated and make it possible to effect transactions.
Web site: http://www.acq.org/

Organization: Auberge de La Fontaine
Sector: Accommodation
Category of business: Balanced business
Brief description: The Auberge de La Fontaine is an attractive privately-run hotel recognized for its refined décor and warm reception. The medium-sized inn (fewer than 25 rooms) is located opposite Parc Lafontaine and has enjoyed genuine success through adoption of an e-business strategy, which has enabled it to increase by 30% its volume of business.
E-business: Extensive strategic tracking of sites made it possible to ensure that the inn's site provides the most complete information among the sites in its category, thus enabling users to make buying decisions. The site is very user-friendly and an effort has been made to develop a site that even users with no computer skills can use. Its functionalities include complete information on the site, a map, a currency converter, Montréal tourist and cultural activities programs, and links with Tourisme Montréal and <i>Bonjour Québec.com</i> .
Web site: http://www.aubergedelafontaine.com/fra/accueil.htm

Organization: Bonjour Québec.com
Sector: Tourism
Category of business: Ambitious business
Brief description: Bonjour Québec.com's mission is to promote the development of Québec's tourism industry. To this end, resources and efforts centre on guiding and coordinating government and private-sector initiatives in the realm of tourism, encouraging and supporting the development of tourism products, and marketing Québec and its tourist attractions.
E-business: The Bonjour Québec.com Web site has an array of functionalities, including: (1) an information function intended for travellers from around the world who plan to visit Québec; (2) a reservation function, through which travellers can make reservations in respect of rental accommodation, activities, show tickets or restaurants; and (3) a customer service function (Customer Relationship Management approach).
Web site: http://www.bonjourquebec.com/

Organization: Caractéra-Neomédia
Sector: Printing
Category of business: Diversified business
Brief description: Caractéra inc., founded in 1968 in Québec City, opened a Montréal office in 1979. During the 1990s, the technological explosion in the realm of office automation encouraged Caractéra to redefine the services offered and shift to turnkey graphic production, its main clients being advertising agencies. In 1996, Caractéra acquired Neomédia, thus marking its entry into multimedia. Since December 2003, Caractéra has presented itself as a unique entity offering business solutions ranging from simple printed documents to the management of Web content. It offers SMEs the optimization of their business processes through the management of digital assets in respect of both Web and printed applications. The company's sales stand at nearly \$14 million and it now employs 115 people in Québec City and Montréal.
E-business: Caractéra-Neomédia is developing tailor-made products geared to the Internet, intranets and extranets. The Web applications are intended to enable the company's clientele to profit to the utmost from their EB operations and communications. These products are the content manager, the mass e-mail manager, the virtual work room, the product catalogue, e-shopping solutions, and solutions centred on combined printed/Internet publications. The company is also adapting to its customers' needs generic products such as search engines and statistical engines and secure transactional operation modules.
Web site: http://www.charactera.com/transit/fr/

Organization: Colibri Tours
Sector: Tourism
Category of business: Balanced business
Brief description: Colibri Tours' head office is located in Calgary, Alberta. The travel agency is small and sales total under C\$1 million. During the past year, the company saved \$40,000 by serving its customers through its Web site.
E-business: For Colibri Tours, the Internet is a transaction accelerator. Specifically, several functionalities provide services superior to those obtained through traditional functioning: (1) future travellers have access on the agency's Web site to photographs of the itineraries offered; (2) road maps and suggested itineraries are available on the Colibri Tours site; and (3) the Internet makes it possible to offer tailor-made services at lower cost while preserving profitability, which was not possible using traditional technology.
Web site: http://www.colibritours.com/

Organization: Comviatel
Sector: Food distribution
Category of business: Bold business
Brief description: The company offers a technological solution which, through a portal and computer solutions, enables buyers and producers in the agri-food sector to effect transactions. The tool is designed to facilitate dialogue between buyers and producers and the completion of transactions.
E-business: The company is similar to an aggregator. Its technological solution, called Comviatel, is designed to establish contact between producers, buyers and distributors in the agri-food sector (the name means "order [commander] via telecommunications.")
Web site: http://www.comviatel.com/

Organization: Constructware
Sector: Construction
Category of business: Bold business
Brief description: Established in 1994, Constructware helps industries in the commercial construction sector to efficiently implement collaboration systems, thus broadening the network of businesses in this sector. Constructware's mission is to become the leading computer-assisted work tool in the commercial construction industry by combining through the Internet the distribution of professional services and extensive information on the industry.
E-business: Constructware is a Web-based solution that simplifies construction design and project management in addition to facilitating on-line communication and collaboration between entrepreneurs, designers and subcontractors in the industry.
Web site: http://www.constructware.com/ (en anglais seulement)

Organization: Coopsco
Sector: Publishing
Category of business: Diversified business
Brief description: Cooperatives in the education sector in Québec have existed since 1994. Today, the Fédération des coopératives québécoises en milieu scolaire (FCQMS) comprises under the Coopsco banner 59 school cooperatives in 82 educational institutions totalling over 100 service outlets in French-language Québec secondary schools, colleges and universities. In 2002, these cooperatives had consolidated sales of over \$106 million. The FCQMS's mission is to promote cooperation and communication, participate actively in the betterment of its members, i.e. user cooperatives, and support the optimization of their potential.
E-business: In order to deal with virtual competition from businesses such as Amazon, Archambault and Renaud Bray and preserve its clientele among graduates, the Fédération des coopératives québécoises received the mandate to oversee the group's shift to EB. This initiative took shape in January 2003 with the establishment of the Coopsco.com portal. Coopsco.com marks a genuine success in a sector with limited technological penetration such as cooperatives, where needs, means and preparation for change vary greatly from one cooperative to the next but must be simultaneously taken into account and reconciled.
Web site: http://www.coopsco.com/

Organization: ECCnet
Sector: Retail trade and distribution
Category of business: Ambitious business
Brief description: The Electronic Commerce Council of Canada (ECCC) is an organization created by the industry in 1997 to help Canadian companies build an efficient distribution network by means of global product identification standards. The ECCC also seeks to foster communication in the realm of e-commerce through various industrial sectors. Today, the organization is positioning itself as a leader in the promotion of the adoption of global standards through numerous industries in order to facilitate product identification.
E-business: The main functionality centres on the development of standards: the ECCC is, first and foremost, a standards organization. Using a unique sequence number assigned by ECCnet I&D, ECCnet registers customers' products in a database, which remains the legitimate property of the unit product code. High-resolution image services are available for an array of promotional publications, e.g. brochures, catalogues and Web sites.
Web site: http://www.eccc.org/public/index.html

Organization: La ferme Martinette
Sector: Farm tourism and food manufacturing
Category of business: Balanced business
Brief description: La ferme Martinette operates in the farm tourism sector. In addition to sugarhouse activities, it offers accommodation and sells maple products. The business is the only sugarhouse to receive AAA accreditation from Agriculture Canada for the salubrity of its facilities and the traceability of its products and is expanding rapidly.
E-business: Its Web site communicates tangibly an experience of La ferme Martinette, especially by means of photographs that can be easily downloaded. The site seeks to offer an integrated approach in respect of La ferme Martinette's core operations. Products are offered on the Web site at the same prices as in the shop and consumers must assume shipping costs, which can be considerable via Canada Post.
Web site: http://www.lafermemartinette.com/coordonnes.html

Organization: GLP Hi-Tech
Sector: Plastic processing
Category of business: Balanced business
<p>Brief description: Established in 1976, the GLP Hi-Tech Inc. group specializes in the design and manufacture of high-precision moulds and the injection of engineering thermoplastics. In 1992, determined to develop its own product, the firm invested heavily in research and development to produce a dead-end polymer insulator. It then founded its GLP Power subsidiary, a division of the GLP Hi-Tech group.</p> <p>At present, the group serves varied, competitive, dynamic markets such as the electronic, medical, optical, telecommunications, aerospace, electricity, recreational products, automobile and other sectors.</p>
<p>E-business: When GLP Power was established, the Internet was emerging as the instrument for the communications mix of businesses. Company management decided that the division would target international markets and to invest in two information Web sites through which the firm's products and services could be marketed, especially those of GLP Power. Since then, the company's Web sites have been updated several times. The latest version of the GLP Power site is available in English and will soon be available in Spanish and French.</p>
<p>Sites Web: http://www.glphi-tech.com and http://www.glppower.com/</p>

Organization: ICGQ-Airesys (a partnership of the Institut des communications graphiques du Québec and Airesys)
Sector: Printing
Category of business: Bold business
<p>Brief description: The ICGQ is a non-profit organization stemming from a major effort to achieve cooperation throughout the graphic arts industry. Since the inception of its operations in May 1996, the Institut has extensively refined and broadened its range of services and expertise. The ICGQ offers a range of specialized services that help firms meet the numerous technological and human challenges that they are now facing and will face in the coming years.</p>
<p>E-business: Management software means a major investment for SMEs, which are not always in a position to spend the funds required to acquire and update it and to purchase the necessary equipment. For this reason, the ICGQ joined forces with AIRESYS in order to lease, through ICGQ servers, INTRAPRINT software to Québec SMEs. Through their existing workstations and a high-speed Internet connection, businesses have access to the entire integrated range of INTRAPRINT software.</p>
<p>Web site: http://www.icgq.qc.ca/depart.html</p> <p style="text-align: center;">INTRAPRINT management software: http://www.icgq.qc.ca/accueil/gest.html</p>

Organization: Impression Paragraph
Sector: Printing
Category of business: Balanced business
Brief description: In 1997, Le Groupe Imprimeur l'Impression, established in 1988, became Impression Paragraph. The firm offers design and computer graphics, film output (pre-press), traditional offset printing, digital printing, computer-to-plate (CTP) printing, finishing and delivery services. It has 50 employees, sales of roughly \$5 million, and exports its products and services to the United States.
E-business: Impression Paragraph's digital department enables customers to view printing projects through the Internet by means of the electronic library principle. In particular, it is possible for the customer to carry out the following operations: submit work through the Internet, directly modify files, directly submit PDFs, view and check the progress of work, and order reprints from the electronic library.
Web site: http://www.impression.net/html/home.html

Organization: Maison Laprise
Sector: Residential construction
Category of business: Balanced business
Brief description: Founded in 1989, Maison Laprise specializes in the construction of prefabricated single-family dwellings and has established a reputation in the construction market.
E-business: The company's Web site makes accessible an on-line catalogue of over 400 models of homes whose descriptions are accompanied by technical specifications, i.e. exterior and interior technical facets, prices, detailed plans by floor, and so on. One of the key functionalities is access to a multiple-criterion search engine that makes it possible to examine nearly 400 different homes. These functions allow users to better target their requests and guide research in light of their selected criteria, e.g. floor area, number of floors, number of rooms, and budget.
Web site: http://www.maisonlaprise.com/index2.htm

Organization: Moules Industriels
Sector: Plastic processing and rubber
Category of business: Balanced business
Brief description: Moules Industriels is a firm specializing in the design, machining, assembly and validation of rubber and plastic moulds, composite models, and related tools. Its customers operate in the transportation, commercial and medical sectors, mainly in Québec and Ontario.
E-business: The company's first Web site was set up in 1998. In addition to providing information, the latest version allows some customers to consult on-line the design of their product.
Web site: http://www.moulesindustriel.com

Organization: Polar Plastic
Sector: Plastic processing
Category of business: Balanced business
Brief description: Established in Montréal in 1972, the company manufactures disposable plastic utensils, plates, glasses, jars and so on. It is known for the quality and variety of its products, to such an extent that in 1984 the firm launched its products in the United States. Remarkable expansion followed that positioned the Polar group of companies as a leader in the industry, with 70% of the Canadian market and exports to over 30 countries. Its sales stand at over \$100 million. It operates two plants in Winston-Salem and Mooresville, North Carolina, one plant in Saint-Laurent, and a distribution centre in Dorval.
E-business: To satisfy the requests of certain customers wishing to rely on EDI, Polar Plastic decided in 1997 to outsource its operations to EDI Gateway. For several years, it has also done business through the Webgate of some customers, also by means of EDI Gateway. Moreover, part of the company's internal logistics rely on e-business solutions (e-mail) or Xerox's DocuShare software.
Web site: http://www.polarplastic.com/

Organization: RECF (Regroupement des éditeurs canadiens-français)
Sector: Publishing
Category of business: Diversified business
Brief description: The Regroupement des éditeurs canadiens-français was established in 1989 to enable French-language publishers active outside Québec to engage in various joint initiatives. It now assembles 13 French-language publishers that distribute their output between Moncton, Ottawa, Sudbury, Toronto, Winnipeg and Regina.
E-business: Roughly seven years ago, a study conducted by the Fédération culturelle canadienne-française showed that, while there are French-language schools outside Québec that welcome author tours, the books were not available in bookstores because of the limited size of local markets. It was, therefore, decided to set up cultural Web sites to make available French-language Canadian cultural products. The Livres, Disques, etc. project was established in 1999, in conjunction with the dissemination and marketing section. Since the spring of 2000, a biannual catalogue, linked to the Web site of the same name, has been available.
Web site: http://recf.info.ca/home.cfm

Organization: Revue Gestion
Sector: Publishing
Category of business: Diversified business
Brief description: Established in 1976, Revue Gestion seeks to foster the dissemination in French of knowledge in all fields of management. It is especially popular in Québec and is read throughout the French-speaking world.
E-business: In order to face globalization, Revue Gestion must innovate and modify its business model in order to remain competitive. Through the creation of a transactional Web site and syndication, Revue Gestion migrated from a B2C approach to a mixed B2C/B2B approach. This technological shift has enabled the publication to bolster its readership by 2,000 to over 23,000. At present, e-business generates over 40% of its revenues.
Web site: http://www.hec.ca/gestion/

Bibliography

Amit, R., Zott, C. (2001). "Value Creation in E-Business" in *Strategic Management Journal*, 22: 493-520.

Amit, R., Zott, C. (2002). "Measuring the Performance Implications of Business Model Design: Evidence from Emerging Growth Public Firms," working paper, 48 pages.

Andrews, K.R. (1980). *The Concept of Corporate Strategy*. Dow Jones-Irwin, 180 pages.

Dedrick, J., Kraemer, K. L. (2002). "The Impacts of Information Technology, the Internet and Electronic Commerce on Firm and Industry Structure: The Personal Computer Industry," Center for Research on Information Technology and Organizations (www.crito.uci.edu), University of California, Irvine, 25 pages.

Porter, M.E. (1990). *The Competitive Advantage of Nations*. New York: Free Press, 855 pages.

Porter, M.E. (1980). *Competitive Strategy: Techniques for analyzing industries and competitors*. New York: Free Press, 396 pages.

Roy, V., Aubert, B. (2003). "Valeur stratégique, compétences clés et développement technologique" in *Revue Gestion*, Vol. 28, No. 1, Spring, page 33.

Vézina, M., Sabourin, V. (2002). *Nouveaux modèles d'affaires électroniques et développement des PME; Développement d'un cadre conceptuel fondé sur l'examen de la littérature*, report presented to the Centre Francophone d'Information des Organisations (CEFRIO), 77 pages.

Vézina, M., Sabourin, V., Côté, L., Pellerin, M. (2003). " Electronic Business Models, A Conceptual Framework For Small and Medium-Sized Canadian Enterprises, report presented to the Centre Francophone d'Information des Organisations (CEFRIO), available at: http://www.cefrio.qc.ca/english/pdf/Strategis%20_Eng.pdf.