

Electronic Business

*Trends and Issues
for Quebec SMEs*

Research Report



**Canada Economic
Development**
for Quebec Regions

**Développement
économique Canada**
pour les régions du Québec

ELECTRONIC BUSINESS

**TRENDS AND ISSUES
FOR QUEBEC SMEs**

Patrice Ouellet, PhD

in co-operation with

Annie Trudeau

Canada Economic Development

Observatory

December 2001

Minister of Public Works and
Government Services Canada
Catalogue No: C90-4-75-2002E
ISBN: 0-662-86768-8
Impression / March 2002
Printed in Canada

TABLE OF CONTENTS

ACKNOWLEDGMENTS

SUMMARY AND CONCLUSIONS 3

INTRODUCTION 9

PART 1: HIGHLIGHTS OF THE DISSEMINATION OF ELECTRONIC BUSINESS IN QUEBEC 13

- A recent, fast-growing phenomenon 13
- Dissemination closely related to enterprise size and sector 15
- Superficial, limited e-business capability-building 18

PART 2: NEW OPERATING CONTEXT FOR SMEs 23

- Toward new competitiveness factors 24
- Advanced organizational competencies 25
- More complex business strategies 26
- New industrial organization modes 26
- Accessible “value networks” 26
- Toward new business models for SMEs 27
- Some implications for building e-business capability 28

PART 3: ISSUES OF ELECTRONIC BUSINESS FOR SMEs 31

- The issue of SMEs’ competitiveness 31
- The strategic issue: how best to react 34
- Impact of e-business on SMEs: operational advantages or strategic positioning? 38
- The issue of SMEs’ organization: enterprises’ viewpoint 39
- A little perspective 44

PART 4: IMPLICATIONS FOR COLLECTIVE ACTION ON DEVELOPMENT 45

- A sustained commitment in a medium-term perspective 45
- E-business or e-commerce? 46
- E-business or SMEs’ new advanced management practices? 46
- Segmenting the targeted SME clientele 48
- Developing organizational capabilities 50
- Mobilizing intermediary groups 50

CONCLUSION 53

BIBLIOGRAPHY 55

ACKNOWLEDGMENTS

We wish to thank Canada Economic Development for having placed at our disposal the resources necessary for preparing and circulating this report. We remain, however, fully responsible for the analyses and comments herein, which are not necessarily endorsed by the Agency.

We should like to stress that the ideas in this paper greatly benefited from the extremely enriching discussions we have had over the past few years with researchers associated with the Research Institute for SMEs of the University of Quebec at Trois-Rivières, in the context of the Observatory's work.

First we should like to acknowledge the contribution of Professor Louis Raymond, whose ideas on the issue of the "extended SME" and, more generally, the overall question of dissemination of e-business vis-à-vis SMEs, strongly influenced us. We are also grateful to Professor Réal Jacob, now associated with the *École des Hautes Études Commerciales*, whose reflections on SMEs' development issues in the context of the knowledge economy have had a major impact on the texture of this report. We trust they will forgive us if perchance we have taken a few liberties in our interpretation of their work.

Finally, we wish to pay tribute to the team from the *Centre francophone de recherche en informatisation des organisations* (CEFRIO), who, for almost a year now, have participated in the Agency's e-business watch group. Our thanks go to them all.

Patrice Ouellet, PhD

Annie Trudeau

Canada Economic Development Observatory

SUMMARY AND CONCLUSIONS

This report provides a summary of trends and issues which Quebec SMEs face with regard to electronic business — or e-business — and then presents the implications of this situation for the focus of collective action on development.

Few economic issues over the past few years have elicited as much interest and as many initiatives as the Internet and e-commerce. But the euphoria of this boom period precluded an accurate assessment of the economic, strategic and organizational challenges which e-business poses to SMEs. This presentation therefore adopts a different approach.

First, a special effort allowed the analysis to be refocussed on the specific features of SMEs and their challenges with respect to e-business. In this regard, this report has less in common with current literature on trends in the phenomenon proper than with an examination of its special implication for SMEs.

Second, it appeared essential to do more to place the issue of e-business against the backdrop of all the new business practices being imposed on enterprises in a global context. In other words, e-business is not an isolated challenge for SMEs. Considered as a whole, new practices are substantially interdependent and impose unprecedented adjustment challenges on SMEs. Indeed, that is why many SMEs often appear confused, or even powerless, in the face of the speed and complexity of the changes they have to deal with. By considering e-business as one of the components of new advanced business practices, the report therefore reveals enterprises' adjustment issues which development players will have to take into account over the coming years.

Third and last, this report revives a more fundamental conception of the contribution of e-business to SMEs' competitiveness. The lasting competitive advantages which SMEs may derive from it stem not so much from the operational assets made possible by common e-business applications or "solutions" — which moreover are broadly disseminated and imitated — as in its ability to reinforce the distinctive organizational competencies which affect enterprises' competitiveness in the long term.

The first part of the report provides an overview of the implementation of e-business in Quebec enterprises, pointing out that:

- the dissemination of electronic business in Quebec is a recent, fast-growing phenomenon whose development is comparable to that seen elsewhere in North America and the world;
- its adoption remains closely linked to establishment size and sector but, so far at least, the regional factor has little impact. Generally speaking, e-business is deployed in the most dynamic segments of the Quebec economy;
- Quebec SMEs' e-business capability remains very superficial, and is barely or not at all integrated with business strategies. The transactional component (e-commerce) remains completely marginal, both quantitatively and qualitatively, especially among small enterprises.

This initial overview already reveals that enterprises are still at the stage of making choices, and that e-business is only just beginning to spread. But quite clearly, SMEs which fully use these three dimensions — informational, relational and transactional — will remain few in number, particularly as far as its transactional applications (e-commerce) are concerned. Consequently, the almost exclusive emphasis placed on this dimension by development policies appears to be out of synch with the reality. Not only does this contribute to underestimation of prior learning requirements for enterprises, but it also overshadows other applications that are equally important for their competitiveness.

Now that the background has been described, the second part of the report seeks to place e-business more clearly in the context of the overall changes which are working simultaneously to change SMEs' economic environment. These changes affect the way in which business is done, by imposing two imperatives on enterprises: to shorten reaction time in operational and decision-making terms, and to broaden the playing field with respect to their market and operating space. In that situation, enterprises' competitiveness is determined by their ability to master advanced organizational competencies (including e-business), develop more complex business strategies and adopt advanced organizational modes, so as to be in a position to interact more systematically with their environment, especially their partners, clients and support environments. This new context results partly from the dissemination of e-business processes, to the extent that these make organization in networks possible, contribute to reducing transaction costs and accelerate the speed at which information circulates. But while e-business may be considered a key innovative practice from that perspective, one should beware of seeing it as a dominant competitiveness factor. SMEs' competitive advantages and their performance in this new economic environment will be based not on command of a single factor, but rather on a distinctive combination of competencies, strategies and advanced industrial organization modes specific to the knowledge economy.

Nonetheless, most significant from our perspective is the fact that, taken overall, these competitiveness factors are part of an increasingly distinct segmentation of enterprises' business models, some of which bear little relation to our traditional conceptions of SMEs. They thereby both make more complex and enrich the "SME reality" through further differentiation of corporate management culture, growth strategies and the extent of SMEs' (local or global) market and operating space. These different types of SMEs (entrepreneurial, managerial, global) do not have the same competitiveness imperatives, though. While the command of e-business becomes an essential condition of competitiveness for SMEs already involved in globalized activities, it is quite another story for entrepreneurial SMEs for which these practices will remain limited. Between these two models, managerial enterprises (ie., the majority of Quebec's exporting SMEs) represent a special development issue in terms of the competitiveness factors described earlier: more or less engaged in a logical process of globalized business, they tend to retain relatively traditional business practices, and this may eventually compromise their competitiveness. This group of SMEs is therefore likely to resort to somewhat selective e-business applications, without necessarily going through their transactional dimension, e-commerce. However this may be, public programs will now have to segment their objectives and tools and take each type of SME into account.

The third part of the report really goes into SMEs' "black box": it looks in greater detail at what e-business means for them in economic, strategic and organizational terms. The conclusions of the analysis differ considerably from those heard publicly: in purely economic terms, e-business imposes a major challenge on SMEs' traditional business models. On the one hand, it calls into question their comparative advantages vis-à-vis major corporations (close relations with clients, operational flexibility, "unique" knowhow, niche markets) and, on the other hand, it reveals even more clearly their traditional shortcomings (low systematization of internal processes, pursuit of autonomy, etc.) in an environment dominated by interdependence.

How can SMEs meet these challenges? By gradually following an "extended SME" approach. This model enables them better to master and organize internal information, expand information boundaries, intensify relations with partners and, finally, participate in electronic markets.

But the investigations conducted by the Observatory show that this model is still far from the reality in Quebec. Most SMEs' attitudes are tinged with caution, resignation and skepticism, prompting them to perceive e-business as a threat. The report attributes this situation to three factors: (1) it is a recent, little-known phenomenon, still manifesting itself through institutions' weak-signal networks; (2) the adoption of e-business processes will never become a mass phenomenon and it will remain closely tied to innovative business models; and (3) e-business poses for SMEs an organizational challenge that is much greater than generally thought.

These factors explain the mixed results of several public measures, notably those which aimed to "sensitize" a clientele of SMEs without any differentiation through emphatic discourse, without offering them any concrete accompaniment tools. In fact, many SMEs have difficulty translating the issue of e-business into strategic decisions and effective action plans, for lack of expertise and specialized human resources. Access to expertise in all its forms (to design and implement an e-business master plan) clearly constitutes their main expectation with regard to public support.

Finally, the last part of the report examines the implications of this analysis for action by groups and institutions which, in the pursuit of economic development objectives, encourage the adoption of e-business. Following the initial euphoria which saw these stakeholders carrying out innumerable "sensitization" initiatives, the period now beginning brings us back to more concrete concerns, inspired by the need to place accompaniment resources at enterprises' disposal. Front and centre in this new strategy, non-technological SMEs attract attention to the extent that they are the ones, in most countries, stepping very cautiously vis-à-vis e-business. The conclusions of the report will without doubt provide food for thought in this regard.

Also, in that perspective, this presentation invites stakeholders to take the following principles into consideration:

1. Undertake a “patient” approach that is engaged in the medium term

E-business is part, along with other emerging business practices, of a major change in SME models, their management culture and their practices. The complexity of these issues is incompatible with the pursuit of immediate, visible results. By targeting SMEs, stakeholders must set themselves modest objectives and aim for enterprises to build these capabilities on a lasting basis.

2. E-business or e-commerce?

The transactional dimension of e-business is neither the sole nor the greatest challenge which the virtual economy poses for SMEs. In fact, the concrete benefits which industrial SMEs may derive from e-business are often of a different type. The numerous relational (eg., management of relations with clients) and informational (eg., watch activities) applications are among the main ones. These concrete applications, often simpler and less costly, may prove to be wise choices for an SME when they contribute to reinforcing the key components in its value chain. The fad effect generated by e-commerce alone (and Web sites) has nonetheless overshadowed these opportunities for integrating SMEs with the virtual economy. The time to act is now.

3. E-business or new advanced business management practices?

Our research has laid great stress on the fact that e-business is but one facet of emerging new business practices. Highly interdependent, these are part of a new management culture for SMEs, far different from that prevailing when the enterprises which have now reached a level of maturity first saw the light of day. That is why measures in favour of e-business would do well to be in line with more global, or holistic, approaches, encouraging enterprises gradually to take on this culture and its practices. Incidentally, for a large number of SMEs, especially managerial exporting SMEs, the issue of development does not lie in the adoption of e-business per se, but is much more a question of guiding them onto a path whereby they build these new capabilities on an ongoing basis.

4. Segment SME clientele and offer customized incentives

In the knowledge economy, nothing less resembles an SME than another SME. This paradox is explained by the growing differentiation of enterprises' strategic business models. In the circumstances, it would be illusory to target extensive e-business capability-building by a large number of SMEs. Only a minority of them, more clearly innovative and engaged in the new management cultures, will be able to take this route.

Global SMEs are particularly likely to respond to the opportunities afforded by e-business. Already involved in the logical process of integrated value chain management, they are familiar with the network culture and have more highly developed strategic planning tools. Experience shows, however, that these enterprises are little affected by direct government measures, often intended for a broader clientele. Owing to their experience and the business culture which drives them, these enterprises could nonetheless play a mobilizing role vis-à-vis their fellow enterprises.

Managerial SMEs without doubt represent the “group at risk” to which economic development stakeholders should give priority in targeting their efforts. The most innovative among them may take a gradual learning approach even if, very often, they are initially motivated by the pursuit of a rapid solution to concrete operational problems. This approach will subsequently help establish an overall diagnosis and then equip them with a strategic plan encompassing their business objectives. To be effective, this “small step” approach involves the acquisition of internal capabilities, particularly specialized human resources. That being said, this substantial core of SMEs stand to gain the most from an upgrading of their business practices in general. This report put forwards some paths for action in this regard.

Finally, entrepreneurial SMEs, especially those whose marketing can benefit from network advantages (eg., regional produce), could become involved in collective projects, thus compensating for the low level of interest and relevance which e-business can represent on an individual basis.

5. Develop enterprises’ organizational capabilities

Before being “opportunities” from which an immediate return may be expected, e-business represents, for SMEs, an investment in organizational (strategic, operational, human, information and communications technology management) capabilities whose gains — quite real, as with those associated with other advanced business practices — do not appear as clearly to decision-makers. For that reason, and since these SMEs often have difficulty translating weak information signals into operational decisions, measures that involve making traditional support resources (eg., financing, generic information) available on demand are of course inadequate. If it is wished to see SMEs gain e-business capability, then it is necessary to innovate with respect to services, subscribe to proactive accompaniment approaches, and invest in the development of their internal organizational capabilities and their ability to interact with both their support environment and their partners.

6. Mobilize intermediary groups within a framework of collective action

Business associations, specialized centres and economic development promotion groups interact with SMEs within non-commercial value networks in direct touch with economic production. To the extent that they have easy access to collective knowhow, they can, in conjunction with public authorities, play a major role in promoting new business practices, in particular e-business, as the experience outside Canada shows. However, in Quebec, the “mobilization” of these players remains limited, probably owing to fragmentation and dispersal which hamper their ability to participate in large-scale initiatives. However this may be, public policy can exert a constructive influence by encouraging intermediary groups to promote any of the following added values:

- Act as learning network facilitators, linking enterprises (by sector or interest group) with a view to involving them in sharing of concrete knowledge on new business practices, including e-business;
- Develop and transfer pre-competitive knowledge inherent to a sector or a series of associated enterprises;
- Establish specialized training or accompaniment services (eg., specialized institutes, training institutions) placed at the disposal of SMEs;

- Facilitate the establishment of pre-competitive collaborative platforms (in the form of information portals, for instance).

In conclusion, it has to be emphasized that the current economic context is pressuring SMEs, the organizations representing them and the institutions supporting them to speed up collective learning with respect to this new business culture and the practices it generates. By placing e-business in this perspective, the authors of this research hope to make a modest contribution to shedding light on the conditions conducive to *acting on development*.

INTRODUCTION

This report provides a summary analysis of the issues facing Quebec SMEs with respect to electronic business, and then describes the implications of that situation for the focus of collective action on economic development¹.

E-business and its transactional dimension, e-commerce (both concepts are defined below), are certainly among the development issues attracting the most media coverage over the past few years. In the business literature and in economic policy statements, e-commerce is presented as *the* mandatory step toward the information economy, an exemplary, universal business practice, which is able to sustain in the same way the competitiveness of all enterprises, both large and small. Thenceforth, the more spectacular aspects of the phenomenon itself are underlined: rapid growth of online commerce, new electronic marketplaces, new forms of entrepreneurship (Internet enterprises) which make it a model, not to mention the operational advantages which traditional enterprises can derive from it in terms of efficiency (eg., reduced transaction costs) or development of their markets. In this often prophetic discourse, online commerce is presented as the indicator par excellence of the development of enterprises or communities, from which it is gauged how far “behind” or “ahead” a country, region or economic sector is, which justifies broadly deployed sensitization or promotion campaigns, the leitmotif being the urgent need to act. In short, as emphasized in recent IBM publicity, this first chapter in the brief history of e-commerce has unfurled amidst euphoria and prophecy, whereas the second chapter, whose first page is still being written, will bring us back to earth.

This watch paper does not call into question the importance of e-business as a fundamental vector of new business practices, far from it. However, it takes the bold step of avoiding oversimplification of the phenomenon, which tends to ignore the requirements e-business imposes on economic players, in particular SMEs and their support environments. To avoid falling into this rut, we have adopted here a position which, in many respects, breaks with the dominant discourse.

This position is based on the following principles and objectives:

1. Place e-commerce back in the context of the virtualization of business processes

E-commerce (the transactional dimension of e-business) is but one aspect of the dissemination of information and communications technology (ICT) in business processes and not necessarily the most important, from SMEs’ specific viewpoint. This paper therefore adopts

1 By “collective action on economic development”, we mean all the measures undertaken by public institutions and intermediary groups (business associations, sectoral or regional economic promotion groups, etc.) to promote economic development in its different forms.

the more comprehensive e-business perspective so as better to reveal the issues it represents for SMEs².

2. Place the specificities of SMEs front and centre in the analysis

E-business represents a greater organizational challenge than has been implied to date. It requires special organizational and strategic capabilities, among them: systematization of internal processes, strategic planning capability, availability of in-house information technology resources and forging of links with the business environment.

But these organizational capabilities are not the same in SMEs as in large corporations, any more indeed than are the economic benefits each can derive from e-business. Despite this, the literature does not always make the necessary distinctions. For instance, SMEs building on a traditional business model have little command of these internal capabilities and the network culture intrinsic to e-business. One of the objectives of this paper is therefore to place the organizational and economic specificities of SMEs front and centre in the analysis by re-examining in particular how e-business modifies or alters their traditional comparative advantages.

3. Place e-business in the context of the new business practices pressing SMEs

The ambient discourse on e-commerce tends to consider these practices in themselves, without considering other business processes, which are nevertheless imposed at the same time on enterprises in a context of economic globalization. E-business is not an isolated challenge for SMEs. Considered as a whole, these new practices, which are largely interdependent, impose unprecedented adjustment challenges on SMEs. Indeed, that is why many of them appear so powerless or confused in the face of the speed and complexity of the changes they have to deal with and often adopt cautious, even defensive attitudes toward these practices. So it is important to place the issue of e-business more clearly within these changes by clarifying its interrelationships with other advanced business practices which contribute to redefining SMEs' competitiveness factors. In so doing, we will see that SMEs do not all react the same way to these imperatives of change and that, in fact, we are seeing an increasingly distinct diversification or segmentation of types of SMEs, and that a more precise targeting of collective action is thus inevitable.

2 Electronic business (e-business) refers to the virtualization of organizations' business and management processes which results from the application, to varying degrees, of information and communications technology. These processes involve both the organization of work and production within the organizations and their connectivity to those of their clients, suppliers, partners, etc. Electronic commerce (e-commerce) is a subset of e-business and is more concerned with its transactional and commercial dimensions. By contrast to the concept of computerization, which emphasizes automation of activities, e-business is more interested in management of information and communications.

4. Revive a more fundamental reading of the contribution of e-business to SMEs' competitiveness

Innumerable publications, seeking to promote the adoption of e-commerce, point to the operational and financial advantages which can arise from it, notably for reducing transaction, inventory and order processing costs, etc. Along with Porter (2001), we will maintain that the lasting competitive advantages enterprises can derive from it lie not so much in their short-term, *always imitable* operational advantages, as in the ability of e-business to reinforce the distinctive organizational competencies which affect their competitiveness. In other words, the lasting benefits which a firm can derive from e-business do not exist in themselves. In our view, they stem rather from their contribution to the creation of values that are hard to imitate, which differentiate an enterprise's value chain from its competitors'. This is even more important since the dissemination of B2B (business to business) commerce calls into question many of SMEs' traditional comparative advantages (proximity of clients, knowhow, flexibility and autonomy) vis-à-vis large enterprises. But here too, SMEs appear to be not very sensitized or able to gauge the impact on their organization.

This report is in four parts. Part 1 provides an overview of the degree to which Quebec enterprises have gained e-business capability. This relatively short presentation aims only to place the development of the phenomenon itself in context, by highlighting its major trends.

The objective of the Part 2 is to place e-business in the context of the overall changes which are involved at the same time in the emergence of SMEs' new business environment.

Part 3 more specifically examines the special issues of e-business for SMEs. After clarifying how their competitiveness is called into play, we look at how Quebec SMEs can concretely build e-business capability by espousing an *extended SME* rationale. A presentation of the viewpoints and attitudes of SMEs themselves with regard to these trends and the constraints they undergo concludes this section.

Finally, Part 4 deals with the issues concerning collective action targeted at SMEs and e-business. In light of the statements made above, the authors reflect in this part on the targets and tools used to promote the adoption of e-business by SMEs. They trust this watch report will provide food for thought for all those whose action is aimed at maintaining and developing a fabric of dynamic SMEs, in Quebec and elsewhere³.

3 This report draws on many sources, several of them commissioned specifically by the Observatory. In the interest of readability, we have avoided, except in a few cases, pointing the reader to references in the body of the paper. Instead, a comprehensive bibliography is provided at the end of the report.

PART 1: HIGHLIGHTS OF THE DISSEMINATION OF ELECTRONIC BUSINESS IN QUEBEC

The purpose of this first part is not to present a detailed profile of the dissemination of information and communications technology (ICT) or e-business in Quebec. There have been several recent surveys on this topic, which the reader may usefully consult⁴. Instead, we propose to derive from them some elements of synthesis that will be helpful for the presentation which follows, and that place greater emphasis on the players themselves (SMEs and intermediaries) and their relations with e-business.

With respect to the different surveys or research on the dissemination of e-business, three conclusions or major trends emerge:

- ① Dissemination of e-business in Quebec is a recent, fast-growing phenomenon whose development is comparable to that seen elsewhere in North America and around the world⁵.
- ② Dissemination of e-business in Quebec remains closely linked to establishment size and economic sector, but the regional factor has little impact, at least so far⁶. Generally speaking, e-business is being established in the most dynamic segments of the Quebec economy.
- ③ Quebec SMEs' e-business capability remains very superficial, and barely or not at all integrated with their business strategies. E-business's transactional component (e-commerce) remains for its part completely marginal, both quantitatively and qualitatively.

A recent, fast-growing phenomenon

While computerization of closed-network interchange (electronic data interchange, or EDI) began to spread in the early 1980s, it is only since the mid-1990s, with more widespread Internet use, that the different communications and transactional applications of e-business have truly begun to boom. In fact, close to 70% of Quebec enterprises with 10 or more

4 See in particular RENS, Jean-Guy and Gil TOCCO. *Le cybercommerce au Québec*, IQ, 2001, and POUSSARD, Brigitte and Éric LACROIX. *Le Commerce électronique*, IQ / CEFRIO, 2000.

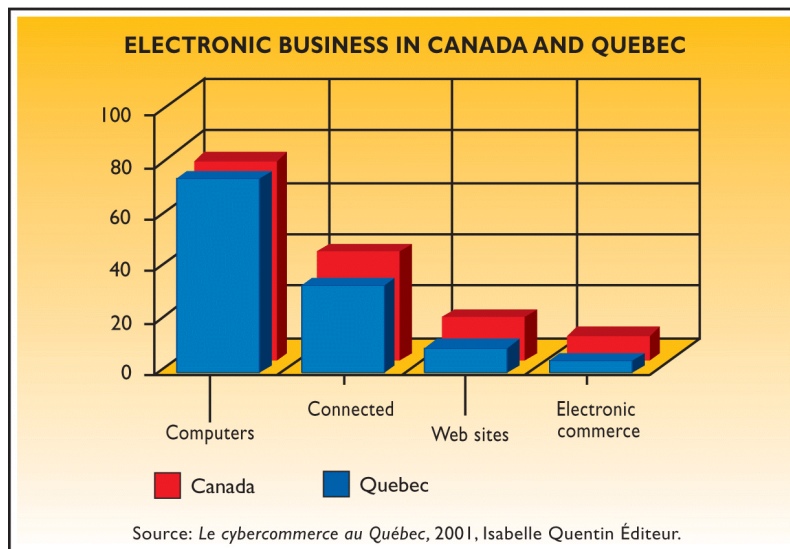
5 This remark remains a hypothesis based on an analysis of major indicators; more refined, comparative analyses are not available. Incidentally, the fact that implementation of the information society differs from one community to another does not justify attributing these differences to “backwardness”.

6 This observation should not be taken to mean that there is any real equality of opportunity among the regions — indeed far from it. Remote rural regions present numerous shortcomings with respect to the challenges posed by e-business. Quite clearly, the gap between them and the urban regions could widen in the coming years, as the phenomenon no longer affects only large enterprises and institutions.

employees which are in a position to use open e-commerce platforms have been doing so for less than three years. Without elaborating on the grand-sounding statistics of e-business growth (in that they often tend to distort our appreciation of the real extent to which enterprises have acquired e-business capability), we would note that it is generally estimated that the rate at which business-to-business (B2B) commerce, representing more than 90% of online commerce in Quebec, is expanding will reach about 33% a year in North America between 1998 and 2003, moving this type of interchange up from 7% to 24%.

These data hide, however, marked differences in the rates at which the various e-business applications are being adopted. While computerization of enterprises with 10 or more employees is relatively advanced (90%), the same cannot be said for the establishment of Web sites (32%) or the development of open transactional processes (6%). The growth rate of applications remains relatively high, but it varies in inverse proportion to their complexity:

- The proportion of enterprises connected to the Internet rose from 57% to 67% between 1999 and 2000. One third of enterprises that were computerized but not connected in 2000 stated their desire to be linked to the Net within 12 months.
- 42% of enterprises with no Web site planned to set one up within 12 months.
- The growth rate of online sales and purchases remains more modest, with enterprises seeking first to consolidate the earlier stages (Internet, Web, EDI).



Although e-business has taken off more slowly in Quebec than elsewhere in North America, the experts agree that the current situation is comparable to the rest of the continent, with the few discrepancies being attributable to differences in industrial and institutional structures. Incidentally, for the past year or two, growth in the different indicators in Canada and Quebec has even exceeded that in the United States, and this points to a trend toward standardization within an integrated economic space that is already one of the most highly “connected” in the world. Care should be taken, however, not to jump to any conclusions, in view of the level of generality of the available indicators.

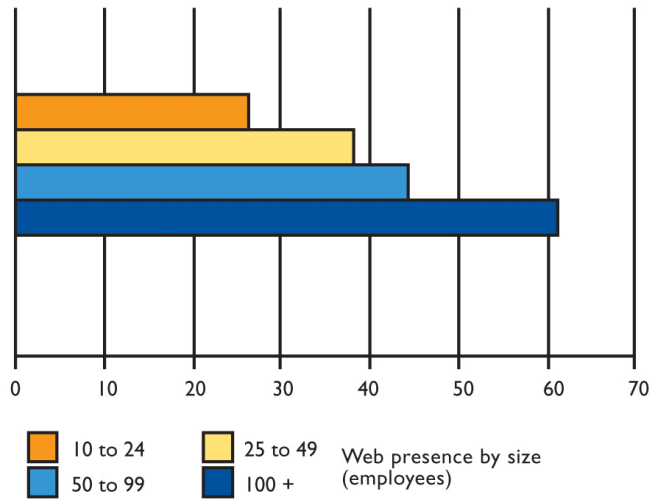
Dissemination closely related to enterprise size and sector

The size of establishments and their sector of activity are the two main variables which explain the different penetration of e-business in Quebec. These differences are especially marked with respect to enterprise size, indicating that to date e-business has remained dominated by the largest organizations and the most dynamic segments of the economy. We will suggest later, however, that if e-business capability-building generally remains associated with enterprise size, it responds more to choices of business models and strategies among SMEs themselves (see Part 2). Innovative SMEs, which implement integration strategies within global operating spaces and markets, while few and far between, are more likely to build on an e-business strategy than traditional SMEs active in local markets. Nonetheless, overall, SMEs with 100 or fewer employees adopt e-business less quickly and less intensely. Statistics Canada recently noted that 31% of enterprises with 500 or more employees were using the Internet to sell their products, whereas this proportion was no more than 6% for SMEs with 19 or fewer employees. This situation may be explained by a series of factors (presented in greater detail in Part 3), which we can summarize as follows:

- Transactional e-business applications are often considered to be of little relevance by SMEs whose products or services (eg., customized subcontracting), marketing strategies (a few dominant clients) and business models (less complex and systematized) do not lend themselves well to them⁷.
- These SMEs feel they lack (human and financial) resources.
- They show great caution, since they are less able to manage uncertainty and the commercial and technological risks (eg., security) inherent in e-business.

7 In its Survey of Electronic Commerce and Technology, Statistics Canada revealed that 56% of enterprises not using the Web to make transactions of goods and services felt their products or services did not lend themselves to this, while 35% considered it preferable to retain their existing business models (see The Daily, April 3, 2001). www.statcan.ca

DISSEMINATION OF ELECTRONIC BUSINESS BY ESTABLISHMENT SIZE



On the other hand, the dissemination of e-business varies substantially depending on the sector, as may be seen from the table above. These differences should be seen not as symptomatic of a “deployment problem”, but first and foremost as confirmation that processes and issues differ greatly from one sector to another. Implementation consequently varies according to the complexity of business processes in the sectors, their level of economic integration (intensity of inter-firm and international trade) and their need to deal in information and knowhow. Overall, the Boston Consulting Group forecasts that in Canada, the sectors most affected by e-business between now and 2003 will be utilities, computing, the automotive industry, financial services, pharmaceuticals, aerospace, industrial machinery, and electrical and chemical products. The commodities, resources and construction sectors will be the least exposed to these new practices.

DISSEMINATION OF ELECTRONIC BUSINESS BY SECTOR IN CANADA, 2000

(in % of enterprises)

DISSEMINATION OF ELECTRONIC BUSINESS BY SECTOR IN CANADA, 2000					
(in % of enterprises)					
↑ HIGH PENETRATION	Information and cultural industries (91.1%)	Information and cultural industries (92.7%)	Educational services (private sector) (69.7%)	Information and cultural industries (52.7%)	Information and cultural industries (18.9%)
	Professional, scientific and technical services (85%)	Professional, scientific and technical services (89.2%)	Information and cultural industries (54.5%)	Educational services (private sector) (41%)	Educational services (private sector) (15.6%)
	Educational services (private sector) (83.6%)	Educational services (private sector) (84%)	Manufacturing (38%)	Professional, scientific and technical services (35.8%)	Wholesale trade (13.5%)
	Utilities (82.9%)	Utilities (80.8%)	Mining and oil and gas extraction (36%)	Utilities (25.5%)	Retail trade (8.7%)
	Finance and insurance (76.1%)	Mining and oil and gas extraction (78%)	Finance and insurance (34.4%)	Wholesale trade (22.5%)	Manufacturing (8.2%)
	Use of email	Internet use	Web site	Internet purchases	Internet sales
LOW PENETRATION ↓	Management of companies and enterprises (49%)	Retail trade (52.7%)	Forestry, logging and support activities (18.5%)	Other services, except public administration (10.5%)	Transportation and warehousing (2%)
	Other services, except public administration (48.1%)	Other services, except public administration (51.8%)	Management of companies and enterprises (16.9%)	Accommodation and food services (10.1%)	Forestry, logging and support activities (1.6%)
	Retail trade (47.7%)	Real estate and rental and leasing (51.2%)	Health care and social assistance (private sector) (15.6%)	Real estate and rental and leasing (8.8%)	Management of companies and enterprises (1.4%)
	Accommodation and food services (40.1%)	Accommodation and food services (44%)	Transportation and warehousing (12.9%)	Management of companies and enterprises (8.5%)	Health care and social assistance (private sector) (1.3%)
	Forestry, logging and support activities (33.7%)	Forestry, logging and support activities (42.3%)	Accommodation and food services (4.7%)	Forestry, logging and support activities (4.5%)	Mining and oil and gas extraction (0.4%)

Source: Statistics Canada, Survey of Electronic Commerce and Technology, 2000.

Finally, at this level of aggregation, the regional context proper does not appear in itself to be a determining factor in the decision as to whether or not to move into e-business. The differences noted are attributable rather to variants in industrial structure (size, sector, status of establishments). In micro-economic terms, one may reach a different conclusion, particularly with respect to remote rural areas, where the smallest enterprises have to deal with deficiencies in services and a demobilizing development “climate”.

Superficial, limited e-business capability-building

The somewhat superficial nature of e-business capability-building in Quebec to date is likely the most important issue of the three major trends observed. This situation seriously relativizes the oft-heard triumphalist discourse on e-commerce while at the same affording a glimpse of the distance enterprises have yet to travel. We will look at this problem in two parts: first, by drawing a generic profile of the degree of e-business capability-building by enterprises with 100 or fewer employees by stage of development, and then by reviewing the context of e-business management and resources within enterprises.

1. *Very little use made of e-business processes by Quebec SMEs*

In 1999, barely 1% (perhaps 2% in 2000, this information not being available) of Quebec SMEs with 100 or fewer employees were fully taking part in e-business (informational, relational and transactional aspects). Close to three quarters did not have the technological infrastructure necessary to move seriously in that direction.

Breaking down e-business capability-building into six stages or levels of complexity reveals that:

- Stage 1** **Use of computers:** one third of SMEs with fewer than 100 employees (all sectors) had no computers.

- Stage 2** **Use of a local area network (LAN) to share information in open mode:** 65% of SMEs did not have this infrastructure, a prerequisite for e-business.

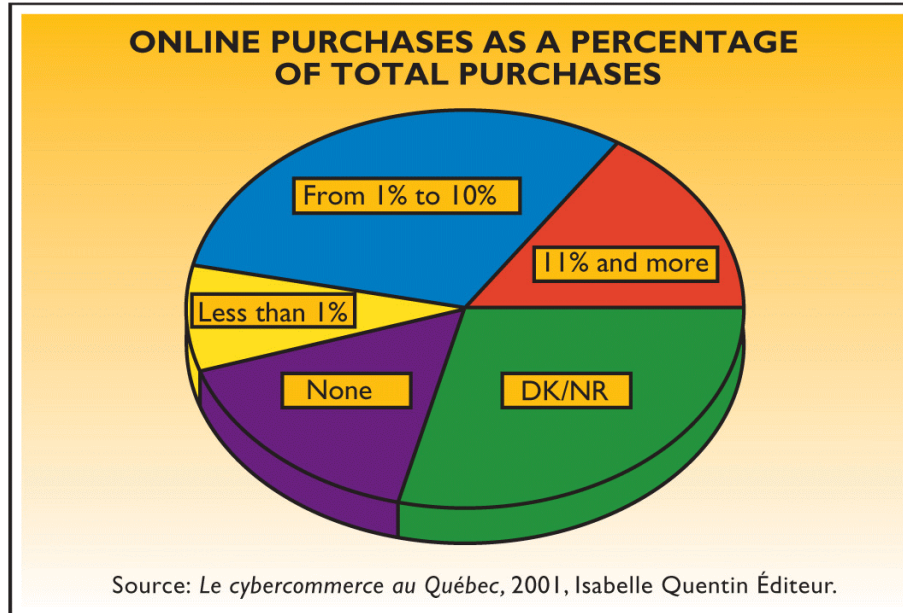
- Stage 3** **Information-sharing in open mode — collaborative environment:** fewer than 50% of SMEs with more than 10 employees were in a position to store information on their clients and suppliers; barely 5% circulated information on an Intranet, and 13% used groupware.

- Stage 4** **Use of basic Internet functions** (sending email, EDI, acquiring minimal information): most “connected” SMEs use basic Internet applications. Most of them do not give all workstations access to those functions. Three quarters have bandwidth of no more than 128 Kbps (whereas most have access to more sophisticated services), a level clearly inadequate for the interactive applications of e-commerce as such. According to the recent survey entitled *Le*

cybercommerce au Québec, 70% of enterprises with 10 or more employees still used a modem in 2000, that is, infrastructure which does not make it possible to use the Internet as a genuine work tool. This observation shows that the issue of bandwidth has to be considered first and foremost a question of corporate policy!

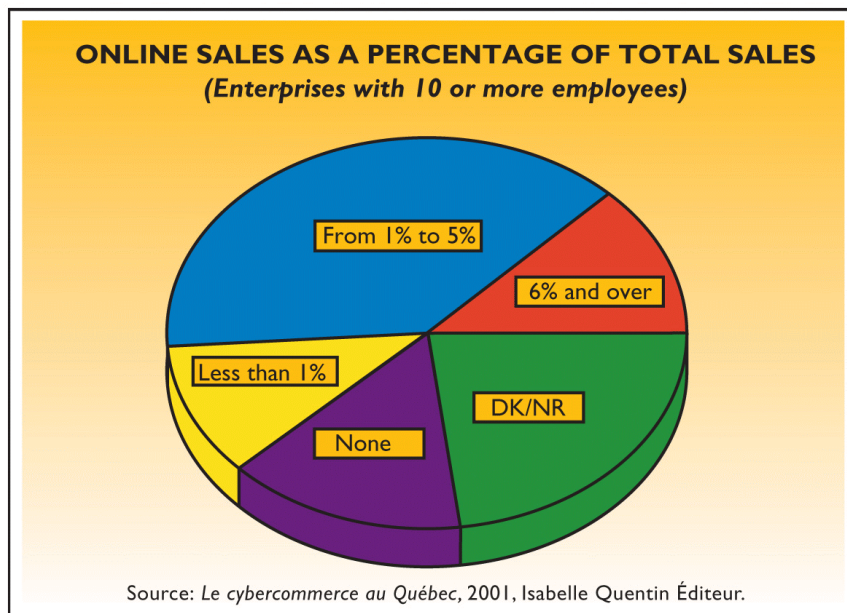
Stage 5 **Internet as a promotional showcase:** most SMEs with a Web presence in 2000 used the Internet in passive mode (without any value-added information) to promote their products. These were, however, very rudimentary sites, to the extent that, in close to 80% of cases (enterprises with 10 or more employees), the enterprise had invested less than \$10,000 to set them up.

Stage 6 **Active participation in e-business:** barely 1% of SMEs with fewer than 100 employees were in a position to operate a transactional site, use a data warehouse and circulate information both in-house and to their business partners. *Le cybercommerce au Québec* broadens this conclusion to all enterprises with 10 or more employees, noting that only 16% of them made more than 11% of their purchases online. As to sales, it was noted that 13% of enterprises made 6% or more of their total sales online. The transactional dimension of e-business (e-commerce or cybercommerce) therefore remains, for the time being, a very marginal phenomenon.



2. The systematic weakness of the organizational resources invested

Quebec enterprises invest relatively little by way of resources in developing their e-business processes. *Cybercommerce* notes that the vast majority of them do not set up master plans before initiating the process, with 50% considering this to be unnecessary and 20% arguing they are not ready for it. The necessary funds generally come from special budgets, adopted on an ad-hoc basis. Incidentally, 82% of enterprises with 10 or more employees assign five or fewer employees to managing and developing e-business. This is a far cry, it should be pointed out, from the concern that e-business should become an integral part of organizational strategy. This superficial e-business capability-building is no doubt an indication of the fad effect that has occurred in many cases and which preceded the concrete review of the various possibilities e-business offers enterprises. Everything occurs as if, in contradiction with the public enthusiasm for e-commerce, the players themselves were adopting the step-by-step approach, with the learning process still ahead in most cases.



At the end of this first part, a number of observations must be made:

- Enterprises are still at the point where choices have to be made, since e-business is only just beginning to move forward. The recent nature of the phenomenon indicates that enterprises following this movement are currently undergoing a period of training and experimentation that will be a determining factor for their future strategies.

- Quite clearly, enterprises achieving full use of e-business, notably in its transactional dimension, will remain few in number. Those already using the Internet more widely will be key to future growth.
- The emphasis placed by public policy on e-commerce (in the narrow sense of the term) appears to be out of synch with the reality. This approach underestimates prerequisites for enterprises, as well as other applications that are equally important for SMEs (see Part 3).
- The development of e-business within SMEs appears to be more a problem of business strategy and organizational management. Public policy cannot ignore this situation.

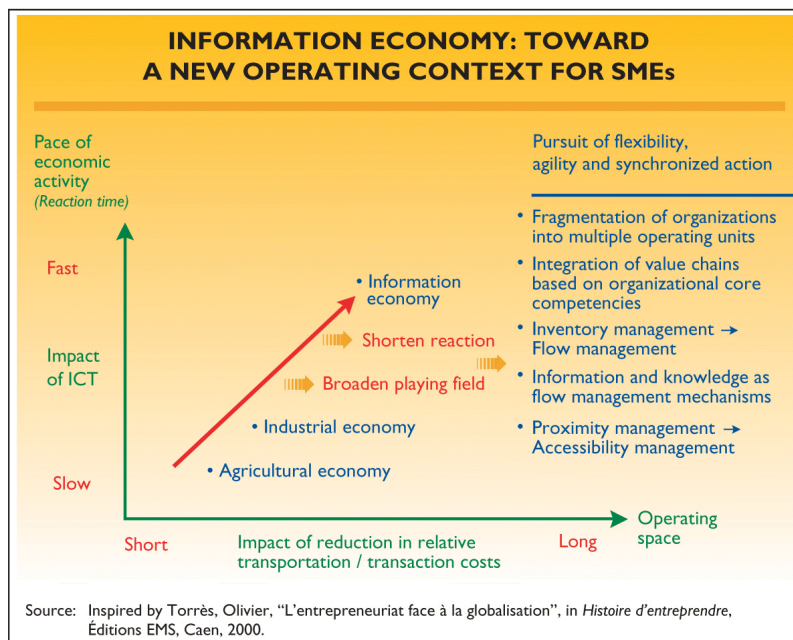
PART 2: NEW OPERATING CONTEXT FOR SMEs⁸

The revolution underway will be driven not by changes in production but by changes in coordination.

Malone/Rockart, 1991

E-business is not an isolated challenge for SMEs. In fact, its implementation is part, along with other advanced management practices, of a fundamental transformation in their operating context. This new context changes ways of doing business and of creating, developing and managing an enterprise. In short, these transitions are manifested by two fundamental imperatives:

- 1) **To shorten reaction time** in operational and decision-making terms in order to deal with the faster pace of economic activity, especially with the continuous changes in technological, commercial and competitive imperatives.
- 2) **To broaden the playing field**, not only so as to widen SMEs' market spaces, but also to extend their operating field, that is, to optimize their supply sources, participate in larger business networks and acquire support resources (financing, personnel, strategic services).



⁸ The content of this chapter is developed more fully in JACOB, Réal and Patrice OUELLET. Globalization, knowledge economy and competitiveness: a synthesis of trends and strategic issues for Quebec SMEs, UQTR, 2001.

Taken together, these imperatives encourage enterprises to:

- Adopt organizational modes based on the rationale of networks within which *accessibility* (of partners and operating resources) supersedes proximity.
- Reorganize production around “product” value chains which build on the core competencies of participating enterprises.
- Adopt flexible, systematic production practices following the rationale of flow management and building on the growing importance of knowhow, information and human capital as sources of added value.

Overall, this new complex, risky environment calls on enterprises’ *agility* and their ability to participate in a *process of interdependence* (with business partners and their support environments).

Toward new competitiveness factors

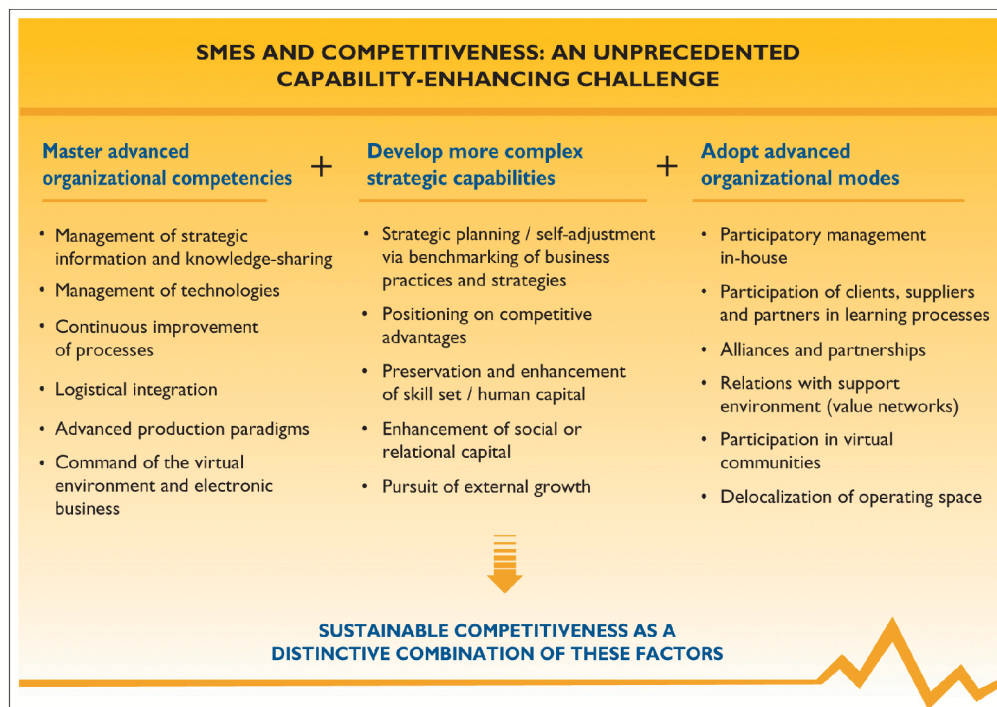
What is the impact of these changes on SMEs in particular? This business context differs fundamentally from the context surrounding the success of traditional enterprises: they can certainly build *a priori* on their traditional comparative advantages in terms of flexibility and agility, but they must also make up for a number of typical shortcomings, such as the low systematization of their internal processes, their culture of autonomy and independence, and above all their reduced ability to break out of local market and operating spaces. Diagrammatically, this new context may be said to redefine SMEs’ traditional competitiveness factors by imposing on them simultaneously:

- ① Command of advanced organizational competencies;
- ② Ability to develop more complex business strategies;
- ③ Adoption of organizational modes enabling them to interact more systematically with the environment.

But as the following diagram shows, enterprises’ competitive advantages and, subsequently, their performances will not be based on command of one specific factor — for instance, that of the virtual environment and e-business — but on a distinctive combination of competencies, strategies and advanced organization modes. These various elements are part of a new enterprise management culture and enable enterprises to differentiate themselves on markets. This conclusion is validated by a recent study from the research laboratory on enterprise performance⁹ at the University of Quebec at Trois-Rivières. Conducted on 49 SMEs, the survey studied the relationship between their performance and use of the PDGmd benchmarking tool. PDGmd enables enterprises to measure and compare themselves in terms of adoption of different management practices. The results of this research show that enterprises using this benchmarking system have substantially improved their performance.

9 See InfoPME, Vol. 1, No. 4. Laboratory newsletters may be consulted at: <http://www.uqtr.ca/inrpme/larepe/>

Indeed, it has prompted them to adopt gradually a series of good practices (primarily with respect to production management and innovation) which comparable enterprises are already using. This conclusion converges with those of similar research. It clearly shows the importance of learning processes in the current context of transition, especially when they enable enterprises to discover the efficient practices which gradually emerge. The following diagram presents a synthesis of these emerging business practices and illustrates the unprecedented challenge they pose to SMEs with respect to their acquisition.



Advanced organizational competencies

Among the advanced organizational competencies that will have to be mastered by SMEs which belong to sectors of activity that have now become globalized, we note in particular:

- Command of logistical integration, which has been made essential by the advanced assimilation of “product” value chains, increased recourse to subcontracting, higher requirements (rapidity, flexibility), generalization of advanced production management practices (modular, just-in-time production, etc.) and systematic demand for international benchmarking by purchasers.
- Command of the virtual environment and e-business processes (we will come back to this).

- Command of rich information making it possible to harness competitive and pre-competitive information from strong-signal (partners, clients, suppliers) or weak-signal information networks (technology centres, training institutions, governments, business associations).
- Acquisition of innovation management capabilities (patents, etc.).

More complex business strategies

Long associated with business strategies of low complexity (cost control, simple export strategy), SMEs now seeking to enter non-local markets must acquire more sophisticated strategic skills, and must notably:

- Position themselves according to their core competencies and outsource their peripheral activities.
- Conduct benchmarking of their management practices and their strategies.
- Adopt differentiation strategies based on innovation.
- “Professionalize” and decentralize their management.
- Systematize their internal processes and, at the same time, develop their ability to improvise in response to signals from the economic environment.
- Preserve and develop their skill set (the challenge of enhancing human capital), notably through the adoption of work organization facilitating peer learning and encouragement of a broad-based culture of innovation.
- Resort more systematically to external expertise.

New industrial organization modes

This third competitiveness factor refers to the intensity and quality of the relations maintained by SMEs with a business environment dominated by interdependence, integration and accessibility. SMEs are now invited to:

- Participate in flexible networks (linkage, alliances, joint enterprises).
- Systematize the synergy of their relations with clients and suppliers.
- Set up value networks (technological network, training network, etc.) with their local support milieu.

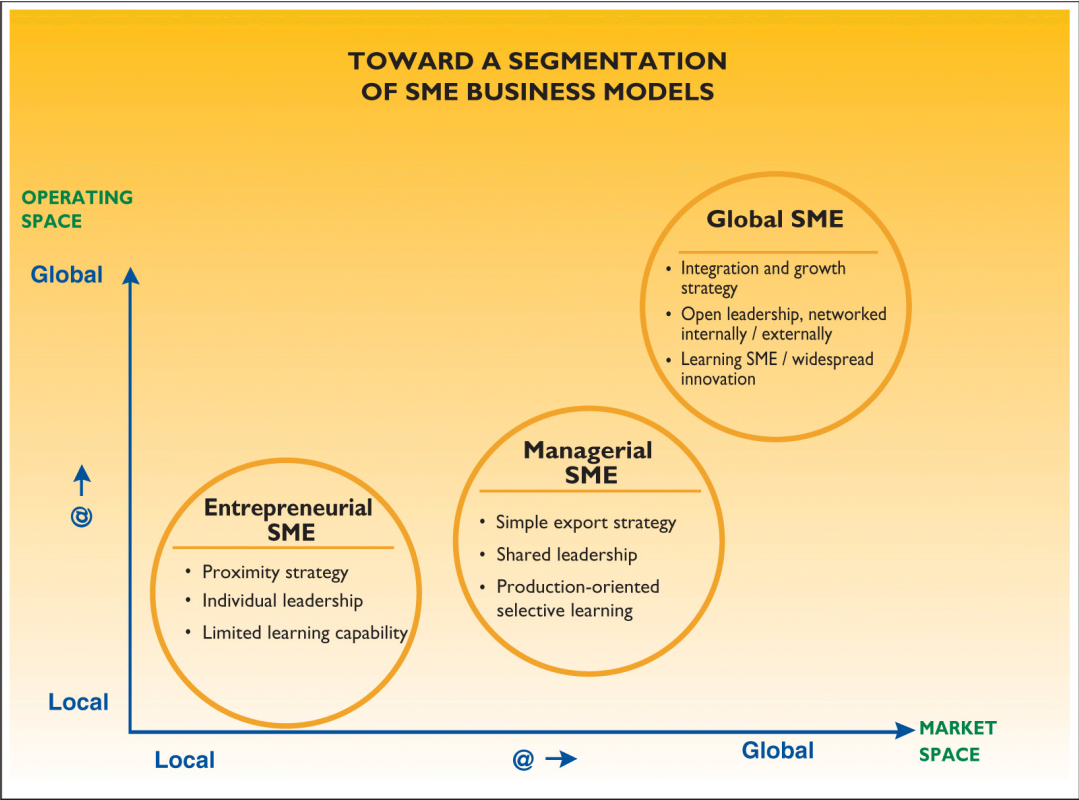
Accessible “value networks”

This interpretation of SMEs’ competitiveness factors would be incomplete if it ignored the major role their support environment is called upon to play, especially technological networks, economic intermediation (organization of information, linkages, accompaniment of entrepreneurship), competencies and human resources development and, finally, strategic services. The competitive enterprise is no longer an isolated enterprise. These institutions and services are now part of “value networks” whose rationale and operating mode will move ever closer to those of industrial value chains (eg., provision of customized training or research

services, just-in-time). Seen from this perspective, the “milieu” can no longer be considered as merely a pool of resources, but more as a stakeholder playing a direct role in enterprises’ competitiveness. But these operating modes do not just happen: both SMEs and institutions have to become less afraid of each other and adopt management practices which favour interaction and exchanges of rich information.

Toward new business models for SMEs

Taken all together, these factors or business practices contribute to the emergence of new business models which contrast with the archetypes of traditional SMEs, not by superseding them, but by broadening and further differentiating enterprises’ profiles based on their culture, leadership type (individual, shared or open) or attitude to growth and the (local or global) scope of their market and operating spaces. In other words, these business models have to be differentiated through an increasingly close coupling between business management approaches and the nature of the enterprise’s products and markets. In substance:



- The entrepreneurial model corresponds to the most widespread perceptions concerning SMEs and entrepreneurship. This type of enterprise is based on the determining role of the executive entrepreneur (individual leadership), the constant pursuit of autonomy and independence, relatively simple business strategies, marked by a short strategic horizon and emphasis on operational concerns. These enterprises seek proximity (clients, resources, etc.) and rely heavily on the flexibility with which internal processes of low complexity and formality provide them. In a globalized economy, this model has meaning only in relation to a typically local market. Its sectors of activity, however, are increasingly limited.
- The managerial model, which dominates today in the manufacturing sector, builds on simple export strategies, but retains a somewhat local operating space and rather traditional management practices, despite the integration of professional managers into management teams. For that reason, these enterprises, especially those in sectors involved in logistical integration (automotive industry, aerospace, electrical products, chemicals, advanced technology, etc.), represent a **group at risk**. In most cases, the issue of building capability in advanced business practices — including e-business — is a considerable one. While some of these SMEs may be seen as early adopters on the innovation front, other, potentially innovative enterprises have difficulty translating the new imperatives and trends into strategic decisions.
- The global model defies the characteristics of traditional SMEs by opposing to them organizational modes and strategic and organizational capabilities that are considerably more complex, as well as leadership that is open and heavily structured in networks both internally and externally. These enterprises function in global operating and market spaces that are highly selective and competitive, where they play important roles within integrated value chains. Thereby, they are more clearly involved in building capability in the new business practices described above, notably work in networks and e-business. They already have strategic planning tools and are more often engaged in the logical process of learning SMEs, which give pride of place to management of information and competencies at all levels of the organization. This explains why global SMEs pick up the most strongly the weak signals that their business environment sends them. They conceive innovation as an ongoing, broad-based process which involves their internal responsibility centres as much as their clients and partners. They operate both in traditional fields (such as furniture) and in advanced technology.

While it is relatively easy for an informed practitioner to recognize these business models in the field — even while admitting that they do not exist in unadulterated form — it is harder to recognize enterprises which actually have the potential to move from one model to another (from managerial to global, for instance). In fact, these changes respond less to a rationale of ongoing evolution than to breaks generated by singular events which radically alter the dynamics and the internal management culture (eg., corporate ownership change).

Some implications for e-business capability-building

The emerging operational context and the business models it is helping to shape are largely the outcome of the rapid dissemination of e-business processes which make network organizations possible, reduce transaction costs and increase the pace at which information circulates. To that extent, e-business may be viewed as a key innovative practice, particularly since it opens the door to other innovative practices (eg., watch activities) that are important for SMEs' performance¹⁰.

However, the relevance or urgency of adopting e-business practices is not the same for all types of SMEs and sectoral environments, as may be seen from their very uneven penetration by enterprise size and sector of activities (see Part 1).

The extensive penetration of e-business will quite clearly be reserved for a limited number of SMEs, particularly "global SMEs", whose effective insertion in extended market and operating spaces is a prerequisite for competitiveness¹¹. This is as true for manufacturing SMEs, which participate in integrated logistical chains, as for their technological counterparts, which participate in multi-partner research networks or even use e-business as an operating model (Internet start-ups). For these strategic SMEs, whose positioning in the value chains places them relatively close to the major purchasers, e-business cannot be dissociated from the adoption of other commercial processes specific to global SMEs (integration of value chains, simultaneous engineering, systematic information management, systematization of internal processes, etc.). That is why their approach may (and must) be more systematic and integrated, and tie in with strategic objectives. Despite their low presumed numbers, these SMEs constitute a major economic development issue for Quebec.

Managerial SMEs which adopt growth strategies are more likely to approach e-business by building on selective applications, through "learning by doing". According to a typology of SMEs developed in Great Britain¹², these SMEs are said to be "tactical" with respect to e-business, in that they seek above all to improve the margin of business processes with a view to reducing their costs or pursuing integration dictated by their business environment. Once again, the long-term relevance of these enterprises' e-business strategies will be

10 Case studies in fact show that the introduction of e-business applications in an SME often lead to many other innovations, notably in its internal processes. For instance, the introduction of production management applications will be accompanied by greater integration of administrative functions in the enterprise. Implementation of an Intranet, for example, will encourage employees to reorganize their collaboration modes. See Working Party on Small and Medium-Sized Enterprises, OECD, DSTI, 2001.

11 This conclusion is confirmed by the "statistical" interpretation of the implementation of e-business in Quebec provided in Part 1. Remember that barely 1% of Quebec SMEs were in a position to make extensive use of e-business processes in 2000.

12 See in particular Business to Business E-Commerce in the UK: A Synthesis of Sector Reports, <http://ukonlineforbusiness.gov.uk/Government/impactstudies.htm>

determined by their contribution to sustaining and developing their key competitive advantages. But, as we shall see in the following chapter, this imperative does not necessarily involve a transactional e-business approach, but more the acquisition of tools for developing relations with clients, systematizing information on internal processes or conducting more systematic watch activities. Many Quebec exporting SMEs are in that situation. They face a dual challenge: first, the *strategic* challenge of translating the trend into concrete decisions, setting up their e-business strategy and altering the corporate culture, and then the *organizational* challenge of mobilizing the resources and competencies required internally and externally, and then managing an appropriate implementation and management process. There is a case for thinking that these enterprises, which also have to deal with other issues of major change, cannot be easily mobilized by the ambient “sensitization” discourse (oriented essentially toward e-commerce), which, very often, is not accompanied by a true process of transfer of competencies and resources¹³.

Finally, entrepreneurial SMEs will build only limited B2B e-business capability. For some of them, for instance niche enterprises (rural and other), association-based processes of promotion and marketing, through portals, for instance, may be highly useful in offsetting the impossibility (and indeed the low level of relevance) of moving into e-business on an individual basis.

These considerations have numerous implications for public development policy. The greatest challenge will be to recognize these three different logical processes and adapt services to enterprises’ objectives.

13 In fact, there is a case for thinking that the somewhat messianic, imperative (believe or die) character of this discourse has very often had the opposite effect on these SMEs.

PART 3: ISSUES OF ELECTRONIC BUSINESS FOR SMEs

This third part more specifically examines the issues of e-business from SMEs' viewpoint. The discussion is developed in three sections. After clarifying how e-business involves SMEs' competitiveness (economic issue), we shall see how Quebec enterprises can concretely gain e-business capability by following the logical process of an "extended SME" (strategic issue). Part 3 concludes with a discussion of the viewpoints of SMEs themselves with respect to these trends and the constraints they experience (organizational issue).

The issue of SMEs' competitiveness

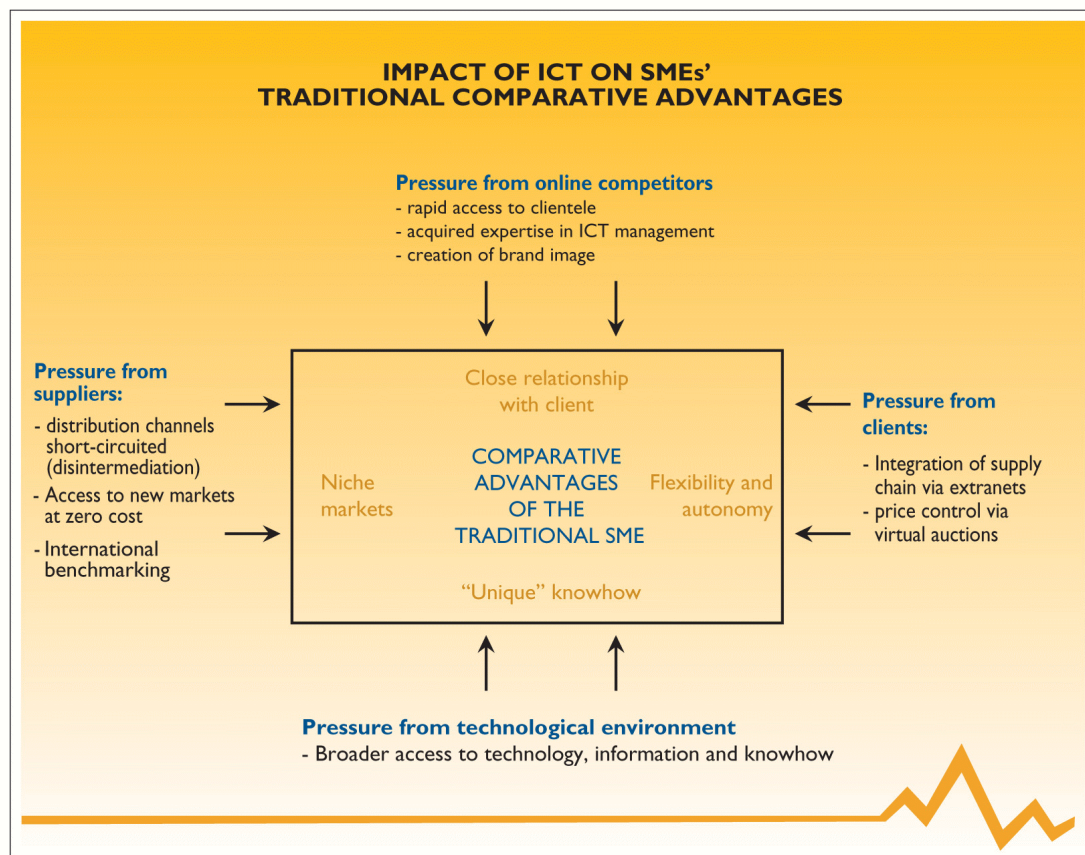
E-business represents an economic challenge for SMEs in that it calls into question their traditional competitive advantages. In short, the question is as follows: how does e-business threaten SMEs' traditional market positioning and how can enterprises use it, on the contrary, to maintain and develop their competitiveness?

Traditionally, SMEs' competitiveness compared with larger enterprises was based on four main competitive advantages:

- The ability to maintain a close relationship with their clients, owing notably to their relative proximity.
- The ability to demonstrate operational flexibility to adapt to their clients' needs or to other strong signals from the business environment, while enjoying substantial autonomy to govern their production and establish prices for it.
- The possibility of harnessing "unique" or distinctive knowhow.
- The possibility of occupying a niche market relatively well protected from intrusion by competitors, notably owing to the relatively high costs of remote development of small local markets.

These competitive advantages of SMEs obviously corresponded to a relatively stable, simple business environment. But the ability being acquired by a growing number of enterprises, large or small, to "broaden the playing field" and "shorten reaction time", notably through the advanced use of ITC, calls into question the near-exclusivity of these advantages enjoyed by traditional SMEs. This is especially true for manufacturing and technological SMEs, which now have to face global competition while agreeing to co-operate with other enterprises within network organizations.

The following diagram illustrates how the dissemination of e-business and the organization modes of markets stemming from it jeopardize these competitive advantages.



The pressures on SMEs’ traditional business models come from all around:

a) Pressure from online competitors

The ability to create meaningful relations with their clientele has traditionally constituted small enterprises’s strength. But one of the major effects of the advent of ICT has been precisely that of extending this ability to all enterprises. Today, the advanced use of the Internet and information systems (such as customer relationship management (CRM) applications) enables large enterprises (and SMEs not located nearby) to reach their clientele rapidly and offer them a customized product, on a global scale (mass customization). Competitors who are able to master e-business applications more quickly can enjoy first-mover advantage to create a brand image, maintain or raise their profile on markets suddenly open to multiple, hitherto “invisible” competitors and gain client confidence and loyalty. Once again, enterprises’ reaction time is the determining factor.

b) Pressure from customers

There is also major pressure from customers, often large corporations, which introduce e-business solutions progressively while remodelling their business practices, notably in terms of relations with their subcontractors. Until very recently, these major product integrators (eg., Bell Textron, General Electric, automotive manufacturers, etc.) had adopted wait-and-see attitudes, evaluating the different approaches and preparing their strategic e-business plans. This period of reflection is drawing to an end. They are generally expected to accelerate, from 2001, the processes of integrating their supply chains, and to require SMEs to be able to work on collaborative platforms requiring acquisition of more extensive e-business capability. Large enterprises' tendency to conduct international benchmarking of their suppliers and to use virtual auctions to minimize their supply costs will contribute to raising pressure on SMEs, in both strategic and operational terms. Because the competitiveness of these large value chains depends on the performance of each of the enterprises, an SME which cannot adopt new business practices corresponding to its client's requirements will be placed in a difficult position. It has to be noted that this context reduces the margin of manoeuvre (autonomy) of SMEs whose business strategy and internal management processes can no longer be defined without reference to the purchasers' processes, which dominate.

c) Pressure from suppliers

Traditionally, SMEs occupied niche markets that were not very accessible to other enterprises owing to the high distribution (distant markets) or diversification (specialized products) costs involved. They thus played an intermediary role between their own (also local) suppliers and their clients. But Internet technologies now enable SMEs' suppliers to enter a market more easily: the cost of setting up a Web site, for instance, remains the same regardless of how many additional clients it enables the enterprise to reach. Where the intermediary adds little value, the "virtualization" of interchange therefore makes it possible to short-circuit conventional distribution channels. This phenomenon of "disintermediation" is particularly evident in the emergence of horizontal or vertical portals, that is, interchange platforms which directly connect purchasers and sellers.

d) Pressure from the technological environment

For a long time, and this still holds true today, SMEs operating in niches have built on distinctive knowhow, which constituted the essence of their brand image (eg., specialty subcontracting). The moment information on competitors becomes widely available and knowhow and technology become commonplace, the preservation of this competitive advantage becomes much harder. In fact, it will depend less and less on the rapid adoption of new technologies (early adopters) than on learning capabilities causing their application in the enterprise to evolve (early learners). SMEs have to move into proactive mode, on the one hand by focussing their activities around a well-defined core competency and on the other hand by making strategic use of ICT with respect to technological and competitive watch. Enterprises in knowledge-intensive sectors of activity have already grasped this issue, but much still remains to be done among those engaged in more traditional industrial production.

In concluding this review, one must beware of believing that these threats to SMEs' traditional competitive advantages stem solely from the dissemination of ICT proper. **What is fundamentally at issue here are certain dimensions of traditional SMEs' business models.** Also, these enterprises' response to the challenges of the virtual economy will have to go beyond

the technological aspect of e-business and be based more globally on new management and development paradigms. Clearly, they will not all be affected in the same way, or with the same intensity. But all of them will have to wonder at some point about the potential of e-business processes for strengthening their key competitive advantages, overcoming their organizational handicaps and finally converting into development opportunities what previously appeared as a threat to many of them. That is what we will now examine.

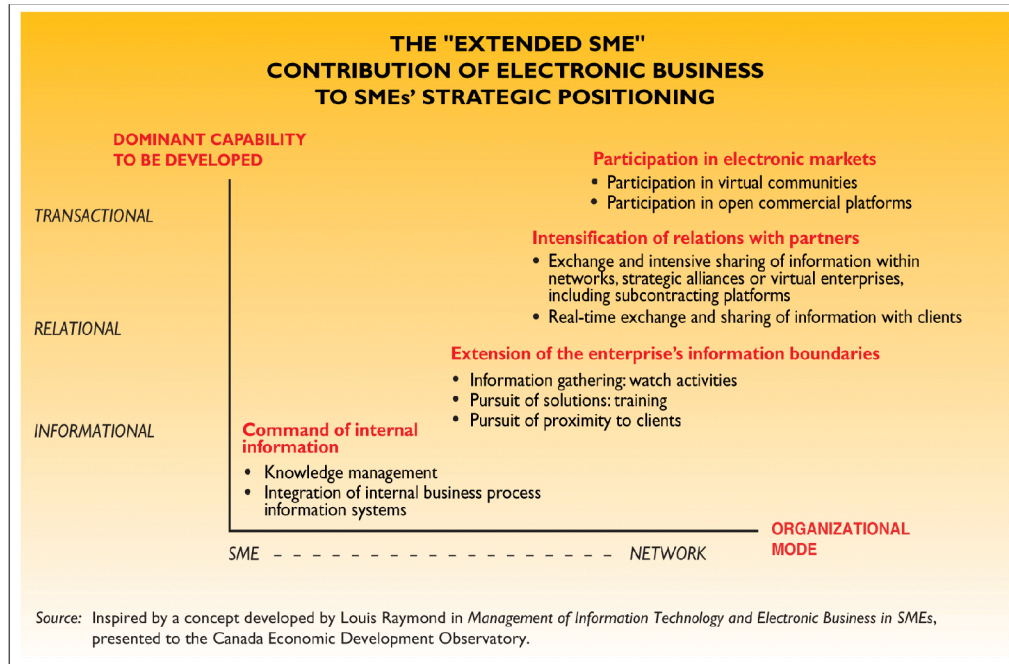
The strategic issue: how best to react

The answer to this question is to be found in the following metaphor: by following an “extended SME” approach.

The “extended SME” incarnates a series of advanced business practices that are part of SMEs’ new business models based on varying degrees of implementation of e-business practices. This concept embraces all of the enterprise’s functional aspects, both its internal processes and its relations with the environment, in their broader sense (clients, partners, competitors, trade associations, research institutes, etc.). The use of the adjective *extended* emphasizes its mode of organization, which goes beyond its (internal and external) boundaries, to access strategic resources, systematize its internal processes and effectively harness all the knowledge it possesses through systematic sharing of information¹⁴. The opportunities for the extended SME go beyond the transactional dimension of e-commerce alone. They are based on four key components, which put forward information and interaction as creative sources of value:

- Command of the enterprise’s internal information.
- Extension of its information boundaries.
- Intensification of its relations with its partners.
- Participation in electronic markets.

14 Traditionally, the boundaries of the enterprise were defined by transaction costs, particularly those associated with information. These costs and the asymmetry of information resulting from them forced firms to integrate vertically. For instance, it was much less costly for GM to produce its own parts than to seek suppliers elsewhere in the world. But the rapid, inexpensive dissemination of information, facilitated by ICT, encourages large firms to “de-integrate”, then to capture and create economic value drawn from multiple sources, located outside the enterprise. This transformation of the product value chain forces them to be more open to their environment and adopt an “extended” organizational form. For an examination of the creation of value in the enterprise, see GERMANY, Rhonda and Raman MURALIDHARAN, The Three Phases of Value Capture: Finding Competitive Advantage in the Information Age, <http://www.strategy-business.com/strategy/01107>.



The following paragraphs¹⁵ review each of these aspects, providing concrete examples of practices and tools already used by innovative SMEs globally. The *extended SME* is therefore not the outcome of the latest fad concept championed by gurus of the e-commerce industry, but the result of emerging practices in enterprises, based on their reality, that will mark the development of e-business over the next few years.

A. Command of internal information

To enhance their competitiveness and become world-class enterprises, manufacturing SMEs are invited to achieve total quality in their products and services, re-engineer their business processes and manage their logistical value chains in a perspective of *integration*. Business leaders have understood that the different units in their establishments could no longer be considered autonomously, that there was a relationship among them: response time, complexity of the operations requested, or the quantity of data to be analysed, processed and disseminated require the use of computer systems to master internal information and systematize business processes¹⁶. To that end, a growing number of enterprises use enterprise resource planning

15 Taken from RAYMOND, Louis. *Management of Information Technology and Electronic Business in SMEs*, Watch report presented to the Canada Economic Development Observatory, Research Institute for SMEs, 2000.

16 According to Germany and Muralidharan, “the game of value capture is no longer won by finding and protecting a defensible position: It’s won by developing a business system that’s quicker and better at using information and adapting the system as the industry evolves.”

(ERP) systems, which, while originally designed for major corporations, are increasingly adapted to the context of SMEs.

The use of relatively simple Internet applications — electronic messaging and organizers, Intranet, discussion forums, videoconferencing — also helps systematize communication, co-operation and co-ordination within enterprises and make organizational databases accessible by means of data mining tools. In fact, according to a survey of U.S. and French enterprises, the most common impact is associated with organization and human resources: the trend toward more autonomy for employees, decentralization of decisions, systematization of procedures and enhancement of personnel (acquisition of new competencies, higher value-added tasks).

B. Extension of the enterprise's information boundaries

Information is renewed at such a high speed on the Internet that it is humanly impossible to follow changes in a competitor's offerings, the latest news in an economic sector or the appearance of technological innovations without the help of electronic assistants. Access to the information highway and the use of advanced search software (intelligent agents, meta search engines, trading agents) enable SMEs to conduct strategic watch activities, hire staff in real time, seek solutions to a specific problem vis-à-vis outside experts and give employees the means to acquire competencies online (distance learning or e-learning). The development of non-commercial virtual communities, designed to facilitate the exchange of information of use to enterprises sharing the same interest, is especially worthwhile. These communities make it possible to break SMEs' isolation and provide access to potentially rich information (eg., Agricoclic and CAToolbox.com, in Quebec).

Finally, by providing the possibility of transferring value-added data in real time, Internet technology also reinforces the proximity of enterprises to an increasingly global clientele. Examples of this type in small enterprises are very significant¹⁷.

C. Intensification of relations with partners

The information highway, based on open Web technology, cements networks, alliances and other forms of partnership by facilitating the intensive exchange and sharing of information that is not only transactional (orders, payments), but also richer in content and interaction.

Simultaneous engineering processes, for instance, harness inter-organizational information systems bringing together subcontracting SMEs and a purchaser by means of "collaborative"

17 A small spectacle manufacturer in Western France (30 employees), specializing in up-market designer glasses, creates customized models online for its clients around the world. Information gathered by its representatives during client visits is stored in a databank accessible to employees, then re-used to improve products and service, and to adapt the enterprise's strategy.

platforms, which are increasingly numerous and integrated¹⁸. XML-based software is used to export EDI systems on the Internet and thus reduce the transaction and access costs associated with the exchange of electronic documents. Generally speaking, the “virtualization” of inter-firm communication cuts the response time between partners and, in some cases, facilitates the search for such partners. Finally, these technologies facilitate an enterprise’s logistical activities by enabling it to keep its business partners and clients up to date on the status of a product in real time (e-logistics).

The impact of large industrial collaborative platforms is just beginning to be felt (Hydro-Québec and Prévost Car). There are those who consider that these mechanisms, which reinforce the integration of the business community, could increase the control of major buyers and consequently the concentration of activities among the larger subcontractors. Quebec SMEs’ ability to position themselves early in these collaborative environments could therefore be crucial, particularly in the case of manufacturing SMEs, especially since, while only a third of large enterprises currently use such collaborative tools, 88% of them plan to adopt some by 2003¹⁹.

D. Participation in electronic markets

An SME can integrate with electronic platforms created by a series of enterprises, sometimes competing, to facilitate co-ordination, benefit from economies of scale and deal on electronic markets proper. These electronic markets, whether horizontal (focussing on a function, recruitment, financing or products required in several sectors) or vertical (focussing on an industrial sector or a specific market segment), where sellers and purchasers of goods or services of a particular type meet, are most often managed by a “dispatcher” (eg., Mediagrif, in Quebec) which matches supply with demand and offers related value-added services. These marketplaces use traditional mechanisms, but in virtual mode. Here are some examples:

- E-procurement applications.
- Electronic auctions (eg., Mediagrif’s Memory Network), reverse auctions.
- Multiple e-catalogue production.
- Automated exchanges.
- E-purchasing co-operatives.

18 In Quebec, Stainless Steel Industries Ltd., which specializes in welding, uses Internet technology for product design and development. In two years, almost all its clients have adopted the Internet for exchanging, modifying and approving drawings. The firm also has access to a larger pool of suppliers, who are competing increasingly strongly with each other, on price as well. See: “La revanche des égoïnes”, La Presse, January 20, 2001: http://www.cyberpresse.ca/reseau/archives/pub_a_p1030967.html.

According to a Forrester Research study conducted on 50 large manufacturing companies, 75% of respondents consider that collaborative design tools will mean faster time to market; 68% of them feel the biggest impact will be in the areas of prototyping and design. See: <http://iwsun4.infoworld.com/articles/hn/xml/01/04/23/010423hncollab.xml>

19 Forrester Research, *ibid.*

All these mechanisms, traditional in appearance, are nevertheless likely substantially to disrupt markets and power relationships among enterprises, large and small. To the extent that they make it possible to access otherwise inaccessible information (on potential clients or suppliers) and exchange information more quickly and efficiently, they contribute to defragmenting markets and consequently to increasing competition in a logical process of accessibility rather than proximity.

The experts consider this trend to be just beginning²⁰. So it is an issue which SMEs must take into account. Already, some of them (eg., Quebec woodchip producers) are seeking to take advantage of these mechanisms by joining together in order to counter more effectively the control of major purchasers. More globally, SMEs wishing to turn these virtual marketplaces to good account have to be able to analyse their needs, evaluate portals relevant to their business strategies and identify partners (systems and technologies) capable of accompanying them. This is no easy challenge to meet, but some of them are successful in it²¹.

Impact of e-business on SMEs: operational advantages or strategic positioning?

What advantages can SMEs derive from adhering to the extended SME model?

This question appears to go without saying for the great majority of stakeholders, indeed of enterprises, which continually underscore the operational gains that the practices characteristic of this model can entail: reduced transaction, inventory and order processing costs, fewer errors, and so on.

Nonetheless, by taking up again a more fundamental reading of the contribution of e-business to SMEs' competitiveness, Porter (2001) calls this spontaneous consensus into question. According to this author, e-business makes it even harder to maintain operational competitive advantages, owing to the convergence of the practices specific to them, their dissemination in similar "e-business models" vis-à-vis a large number of firms in the same sectors and the resulting increase in competitiveness in terms of price. In other words, the operational advantages which an enterprise can momentarily derive from these practices are hard to maintain in the long term. Porter appropriately recalls several well-known cases in the bookstore field. For that reason, it is the enterprise's strategic positioning which becomes the key variable: without strategic management, speed and flexibility lead nowhere. The essential question then becomes the following: How can e-business contribute to equipping the enterprise with a distinctive value chain, and prompt it to trade off activities which reinforce its organizational core competencies?

20 According to a survey by Deloitte and Touche on the emergence of electronic markets, enterprises must expect a 2-year sprint, marking the end of a period of waiting or hesitation.

21 A small steel supplier who had begun to familiarize himself with these places of business reported having successfully made contact with more than 50 new clients (90% of whom were previously unknown to him). He concluded that not only had his transaction costs fallen, but he now had relations with large suppliers which would not have agreed to serve him before.

When expressed this way, the perspective of extended SMEs must not be perceived as an amalgam of “best practices”, in themselves likely to yield lasting benefits, but rather as a series of tools which have to interact with other (more traditional) business management practices of an enterprise with a view to reinforcing its core competencies and distinctive character. As an illustration, an enterprise which stands out for its ability to provide quite special after-sales service will gain from reinforcing this advantage by looking at how e-business can help it go even farther in this direction, and not by counting on merely reducing costs, but by building a distinct competitive advantage that may ultimately help free it to some degree of competition based essentially on price. Incidentally, a recent study on the objectives of using Web sites reveals that reinforcement of the relationship with the client is the No. 1 objective (66% of respondents), while operational effectiveness ranks last (27% of respondents).

It is in this perspective that the following sections will look at the importance for SMEs of initiating their move into e-business by considering their corporate strategy from the outset.

The issue of SMEs’ organization: enterprises’ viewpoint

In considering the status of e-business in Quebec as presented in Part 1 of this report, one notes that the reality of the manufacturing sectors is currently far removed from the “extended” SME model. This discrepancy is confirmed by discussions with owner-executives of SMEs (most of which are clients of public development programs) and intermediary groups on issues and trends in e-business²². It emerges that SMEs and intermediary groups are not very sensitized to the strategic functions of ICT. In fact, of all the trends described, it is e-business which appears the least concrete to them! While not disputing the reality of this current in the medium to long term, they do not feel concerned in the immediate future by their business environment.

Overall, these meetings highlighted attitudes displaying caution, uncertainty, resignation and, in some cases, skepticism. Despite the fact that participants recognize many of these trends and issues, they stress in the same breath that they do not wish to be early adopters. Most of them therefore adopt a strategic position that is more reactive than proactive, thereby showing that the dissemination of e-business is seen more as a threat (or a “compulsory figure” imposed by the environment) than as an opportunity to be seized. Participants also feel these new challenges require internal competencies which they do not have. Other comments tie in with the perspective of running out of steam, that is, they reveal that SMEs have difficulty managing increasingly short, complex waves of change.

This widespread reticence to invest in ICT and adopt e-business practices is documented in many recent surveys. However, the “constraints” listed by enterprises and the interpretation of this by the experts deal with so many different dimensions that it becomes hard to find one’s way through them. Both operational considerations (security issues, lack of resources) and strategic (absence of business plan) or informational shortcomings (lack of objective information on benefits, etc.) are mentioned. The conceptual framework we have put forward above nevertheless allows these results to be reinterpreted. In short, three types of factors are involved:

22 The report of these discussion groups may be consulted on the Canada Economic Development Web site.

A. A contextual factor: a recent, little-known phenomenon, still largely manifested by weak signals

Unlike what one might expect, many enterprises, even among the largest, do not yet feel concretely the imperatives associated with e-business. In many cases, this phenomenon has been conveyed, at least until very recently, by weak-signal transmitters (governments, associations, institutions) to which the most innovative enterprises are primarily sensitive. But the adoption of Internet technology will take place primarily in *response to* pressure from the market and the business environment (*external triggering factors*) which convey strong signals. As we have pointed out, this situation is likely to change rapidly over the next few years.

Incidentally, the *Le cybercommerce au Québec* study emphasizes that there do not appear to be any absolute (eg., financial) obstacles or any *a-priori* rejection of e-commerce (transactional aspect) in Quebec enterprises, but that “more conducive” conditions for adopting it are perhaps being awaited. Generally speaking, for owner-executives of manufacturing and technological SMEs which took part in the discussion groups organized by the Observatory, the recent nature of the phenomenon, the elusive character of its short-term advantages and the few experiences validated by peers are not such as to motivate them²³.

The following are noted in particular:

- Lack of sensitization and familiarity as to trends, issues and technologies of e-business as it applies specifically to their sector of activity.
- Uncertainty or doubt as to the potential benefits of e-business for their enterprise. In fact, methods for evaluating return on investment, generally based on the short term, lead SMEs to neglect the strategic benefits of ICT and, consequently, to under-invest in it.

Unlike what is often the case, the fact that these obstacles are mentioned recurrently must not be perceived as an indication of the need to increase general measures to sensitize SMEs (taken all together) to the advantages of electronic business. Rather, we think these means will have only a mitigated impact until such time as they converge with strong signals from enterprises' business environment, whence the need for more closely targeted measures.

B. An entrepreneurial factor: strategic choices which impose different business models

This second group of factors that explain SMEs' cautious reaction goes back to the constraints “inherent” in their own reality vis-à-vis innovation. We must acknowledge from the outset that small enterprises do not have the same (commercial, technological and competitive) risk management capabilities as major corporations, and that these shortcomings prompt them to adopt a more cautious approach, incidentally like financial institutions which, for that reason, often demand risk premiums from their SME clients. It is also observed that the size of enterprises is an important variable in attitude toward innovation, and the case of e-business is

23 These obstacles are also identified repeatedly by other surveys and studies on e-business.

no exception. So large enterprises often play a lead role in the dissemination of new technology²⁴. This being the case, it is therefore normal to see such differences.

But this interpretation is only partially satisfactory. We fundamentally believe that beyond the contextual factors described above, the building of e-business capability by SMEs goes back to their executives' attitude to the new realities of the globalized economy and the changes they require with respect to their strategies and traditional commercial models. In short, e-business calls into question organizational cultures and management practices that are well anchored in SMEs. But not all of them will make these changes, either by choice, or for other reasons. In other words, the adoption of e-business practices by SMEs may be seen as a detector of the strategic choices of models which they are currently urged to make. In our view, this is first and foremost how the reasons often given by certain SMEs to justify their wait-and-see position must be interpreted. Those which already more or less correspond to the model of the "extended SME" are innovative enterprises which perceive e-business — as well as other advanced business practices, incidentally — as opportunities to be seized, and not as threats.

For these enterprises, the adoption of e-business is concomitant with other more or less explicit, more or less "planned" organizational changes, which all contribute to the learning of new ways of doing things and the ongoing reinforcement of their competitive advantages.

This last observation is especially important in that it reveals one of the fundamental conditions for success of SMEs' investment in e-business. As we have stressed elsewhere in this research, the benefits which SMEs may derive from it in terms of profitability and performance are not "given away" in their applications as such, as is too often implied. These advantages consist rather in a contribution to a learning process that is broader in scope, which encompasses many other of the enterprise's traditional business management practices. This claim is validated by work on several hundred SMEs, recently collated by the OECD, which concluded as follows:

Reviews of firm-level studies on ICT, productivity and organisational changes indicate that the greatest benefits from ICT appear to be realised when ICT investment is combined with other organisational assets, such as new strategies, new business processes, new organisational structure and better worker skills.
OECD, 2001:7.

The enterprises that have been the most successful regularly applied six concomitant practices: introduction of e-business followed a plan, an overall strategy; it involved changes in the enterprise's organization and in work organization; the project was broadly based within the enterprise; and it helped enhance the enterprise's ability to interact with its environment.

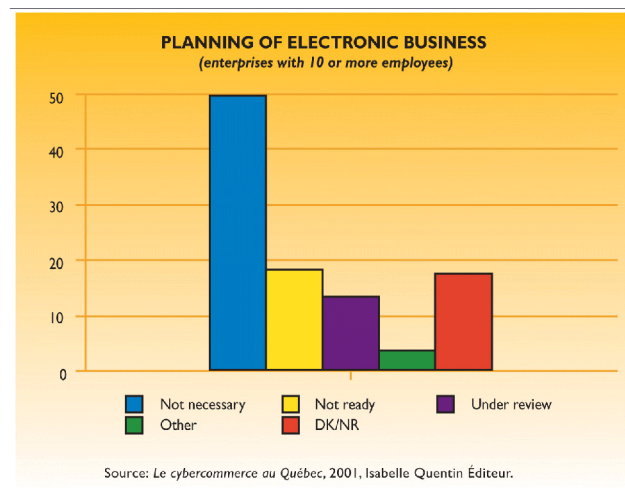
Involved here, then, is far more than an issue of technological "upgrading" (such as EDI, or value-added production). Enterprises' openness to e-business is first and foremost a question of business culture executives' strategic profile. That is where the current defensive positions of a good many Quebec enterprises are a matter of concern.

24 This being said, major corporations have also, to date, adopted a wait-and-see attitude with respect to integration of ICT into their business processes.

C. The organizational factor: strategies and resources

The above remarks must not lead us to under-estimate the importance of the organizational constraints SMEs have to face when the time comes to move into e-business. In fact, this process poses, without doubt, both strategic and organizational challenges to all enterprises, and especially to SMEs.

A large number of SMEs which, while not early adopters, are nonetheless potentially innovative, have trouble translating perceived trends into strategic decisions. These are “cautious” SMEs which, while espousing a growth strategy, adopt the step-by-step approach vis-à-vis the weak signals from their environment. The small size of their organization, their lack of technological resources in-house and the absolute priority they give to operational imperatives tend to constantly reject their more strategic interpretations. This is also true of the adoption of Internet technology, which occurs primarily in *response to* pressure from the market and the business environment (*external triggering factors*), so that it is rarely planned, or is little integrated into the enterprise’s business objectives. The following figure, taken from *Le cybercommerce au Québec*, illustrates this point by showing that, overall, few enterprises (with 10 or more employees) are actually planning the development of their e-business (50% considering it needless!)²⁵.



What is more, by far the majority of them resort to special, non-established budgets to finance these activities while devoting few human resources to them (see Part 1). In short, while a good percentage of enterprises acknowledge the strategic importance of e-business, few integrate them into their business objectives. Is this a paradox? Not really, if one considers SMEs’ low propensity to base their decisions on strategic approaches.

25 We find this same observation in the conclusion of the study *Déployer stratégiquement le commerce électronique (Strategic Deployment of e-Commerce)* (see Boisvert et al., provisional version, 2001:3): “With few exceptions, most executives interviewed recognize that the deployment of e-commerce in their enterprise was not the subject of formal planning.”

The Boston Consulting Group recently reported, upon completing several case studies, that the success or failure of e-business approaches very often depended on the ability to organize oneself appropriately in-house. It is not enough for the organization to be “placed online”: its internal processes have to be reorganized, connections have to be established with the “back office”, the right ICT management structure has to be chosen, skilled personnel have to be mobilized and, most of the time, a change of culture and mentality has to be initiated. An approach implemented without these basic principles being followed is doomed to fail. Following a series of conversations with experts, a French government advisory group consisting of entrepreneurs and service deliverers observed that:

It is the organization’s quality and efficiency with respect to new NICT tools that enable the enterprise to gain efficiency and competitiveness vis-à-vis its competitors, whence the notion of “organizational productivity”.

But, seeing the means invested by Quebec enterprises in planning and organizing the management of e-business processes, there is cause for concern. In other words, this issue is not merely “strategic” and is not resolved merely by drawing up an “e-business plan”. The development and implementation of projects often impose constraints which can call the best strategies into question, for many reasons.

Fundamentally, e-business does not take place at the same pace as traditional business: “winning” approaches sometimes present demands which go against the organization’s traditional ways of doing things. In some extreme cases, enterprises are even forced to entrust management of their e-business to external providers (a parallel firm) owing to excessive contradictions with their traditional organizational competencies. But most often, they have to seek to use these core competencies as levers to support their e-business strategies. For instance, an SME distinguished by its good sales team and after-sales service stands to gain by using this strength to support the introduction of e-business solutions involving its marketing network. Similarly, an SME which has special capabilities in interactive industrial design will be able to accelerate the introduction of simultaneous engineering solutions and thus reinforce its competitive position within an integrated value chain.

On the management front, there are other requirements. The development of e-business — at least in a more extensive perspective — supposes the strong, constant commitment of the enterprise’s management, and this takes concrete form in budget priorities, establishment of a support team, the search for outside expertise in a logical process of partnership (with suppliers) and the choice of a management structure confirming this primacy. Quite clearly, we are not yet there in SMEs, or even medium-sized enterprises. Finally, the management of implementation projects is also crucial: technological choices, the sequence of planning and implementation stages, and staff training are all dimensions which enterprises tend to skip over, “for lack of time”. That is why they are so often tempted by turnkey solutions proposed by resellers, which do not promote real acquisition of the competencies required, and are inflexible.

This being said, the concerns of the SMEs which took part in the discussion groups, like their counterparts questioned in other surveys, show that the lack of available human resources and competencies in-house are a major disincentive. Indeed, in response to the questions on the

forms of assistance they expect from government, respondents clearly placed expertise first among their needs. But expertise means segmentation and specialization, and the forms of assistance deemed the highest priority by SMEs are those which “facilitate access to expert resources” and “facilitate the training or hiring of personnel specialized or skilled in ICT”. Incidentally, they consider that in these areas, governments, research centres, universities and colleges should play a greater role.

These observations make it possible to place somewhat in perspective the constraints concerning security and cost associated with e-business, which are often given as an explanatory factor in SMEs’ cautious attitudes. While real, they do not, however, appear to be determining factors in themselves in the decision to adopt e-business practices.

From the point of view of government assistance, this study highlights the unavoidable need not to hide the organizational dimension in the support of enterprises’ projects. The drafting of implementation master plans must not be seen as less essential than an e-business positioning strategy seeking to match business objectives and the new technologies to support them. Often it is by responding first to these operational concerns that the enterprise will be encouraged to “think strategically.”

A little perspective

Quite clearly, the euphoria of the discourse on e-commerce is not reflected in the actual implementation of e-commerce applications in SMEs. The previous analysis attempted to explain this situation: generally speaking, the scale of the organizational and cultural changes required from these small structures was under-estimated, changes which can only be made slowly, especially in a context where they are seen as threats by the enterprises themselves. This being said, the dissemination of substantially stronger signals should create a context more conducive to action by SMEs.

A “mass movement” should not be expected, though. As we have repeated many times, the relatively extensive adoption of e-business will probably remain exclusive to the most innovative SMEs and those most directly involved in building capability in other advanced business practices. For them, applications associated with e-commerce as such might not be its most important dimension. However this may be, these transitions will require major investment from SMEs in strategic, organizational and technological terms.

For public and association-based stakeholders, this context is not compatible with the pursuit of easy, immediate (but superficial) effects. We are faced with a major issue of capability-building which cannot be dealt with effectively through general sensitization and information measures alone, any more than through “webization” policies. Quite clearly, these challenges require more sustained action that activates SMEs’ organizational capabilities in a more qualitative than quantitative perspective. This hypothesis for action is not motivated by the desire to “win a race” or “catch up”, but by the importance of subscribing to the acquisition of sustainable competitiveness factors.

PART 4: IMPLICATIONS FOR COLLECTIVE ACTION ON DEVELOPMENT

Few economic issues have elicited as much interest and as many initiatives in recent years as the Internet and e-commerce. Indeed, that is why we have chosen to use here the concept of *collective action* to describe the innumerable measures put forward in Western countries by governments and their partners in the business world, institutions and other intermediary groups concerned with economic development, to encourage their adoption. In retrospect, this boom period (which is far from over) will certainly have been an opportunity for experimenting with new ways of doing things from which lessons must be drawn. After the initial euphoria during which stakeholders ran numerous sensitization and promotion initiatives, heralded by prophecy and optimism (and helped along by explosive dot.com growth), the period just beginning brings us back to more concrete considerations, inspired more by the objective of making accompaniment resources available to enterprises on the strategic, organizational and technological fronts. At the centre of these renewed strategies, conventional SMEs hold pride of place to the extent that, in most countries, they have to date shown themselves in less of a hurry than their larger counterparts to build e-business capability, a situation of concern to the public authorities in all those countries.

With a view to shedding light on this question, we have chosen here an “unusual” starting point: to understand the issues raised by e-business in SMEs, they have to be placed in the broader context of the new business practices being imposed on the economic players at the same time. On this basis, we have to seek to understand how these new practices, taken together, contribute to transforming and differentiating the SMEs themselves, not without at the same time calling into question our stereotypical views of them. This work having been initiated, we will now try to pinpoint its implications for the focus of collective action.

The following analysis puts forward five key intervention issues, which stem from the previous chapters. We have voluntarily emphasized strategic considerations (for the focus of action plans) by emphasizing in the process those which already correspond to current trends within institutions.

A sustained commitment in a medium-term perspective

We have highlighted the fact that the dissemination of e-business cannot be reduced to the adoption of technology, but proceeds more fundamentally from an important transition in SME models, and ways of conceiving and managing enterprises. The complexity of these issues for the enterprises themselves is not compatible with the pursuit of immediate results. Quite clearly, public programs which target SMEs will have to set themselves modest goals, agree to experiment, target objectives over the longer term (rather than pursuing immediate but superficial effects, like some policies which aim only to connect SMEs or “webize” them) and build on

inevitable failures²⁶. By “betting” on SMEs, the stakeholders must also accept the inherent difficulties which these choices impose and *invest patience and energy*.

The great challenge of this type of action is to match the weak signals which the discourse of governments and their partners represent for enterprises with the strong signals emanating from their business environment. But to date this convergence has been limited. A large proportion of Quebec SMEs do not yet feel this pressure or, if they are aware of it, are reacting to it extremely cautiously. That is why we have to question the effectiveness of ad-hoc measures which seek to affect an undifferentiated mass of enterprises on the basis of a general sensitization discourse which, moreover, is not accompanied by transfer of expertise and accompaniment measures. Evidently, the effectiveness of the action will depend on a much more fundamental, selective approach, building on the exemplary effect of a smaller number of more clearly innovative SMEs, engaged in taking on a new culture and concerned by strong signals from their business environment. It will also depend on long-haul work involving all the groups operating in the field of support for SMEs.

E-business or e-commerce?

We have established that the transactional dimension of e-business (e-commerce) was neither the single nor the greatest challenge which the virtual economy poses for SMEs. Also, a strategy which, like many government measures, focusses only on this aspect (for instance, by building only on the construction of transactional Web sites with a view to increasing exports) could have, at best, only a limited impact on SMEs, for two reasons:

- E-commerce as such requires the prior learning of ICT management skills and competencies, which very few Quebec SMEs have.
- The benefits which SMEs can derive from ICT, either to counter the threats to their traditional competitive advantages (proximity of clients, niche markets, etc.) or to offset their shortcomings (eg., low systematization of internal processes) appear to be more informational and relational than transactional in nature.

The previous discussion of “extended SMEs” has already illustrated concrete informational and relational applications within SMEs’ reach which could fuel action in favour of *e-business*.

E-business or SMEs’ new advanced management practices?

E-business is not an isolated challenge for SMEs. In fact, it is but one facet of *heavily interdependent* new business practices that are being imposed on them. Quite clearly, the complexity of the strategies and decisions which these enterprises have to make in embarking on these new practices has been both underestimated and overshadowed by measures focussed excessively on e-commerce. This is not a mere “instrumental” shortcoming which could be resolved by broadening the framework for encouragement measures: e-business and other new

26 By comparison, a strategy of support for exporting SMEs does not present the same degree of difficulty. Unlike exports, the benefits enterprises can gain from e-business are rarely immediate and quantifiable.

business practices belong to a management culture far different in many ways from that which prevailed when SMEs which have now reached maturity first saw the light of day. That is why initiatives in favour of e-business would gain from being in line with more global (holistic) approaches, facilitating both the building of capabilities in these new practices and the progressive adherence to the principles underlying this new culture of organization management. Britain's *Fit for the Future* initiative, briefly described in the following box, is a good illustration of this type of approach.

Fit for the Future

Fit for the Future (<http://www.dti.gov.uk/mbp/fit>) is a joint initiative of Britain's Department of Trade and Industry and the Confederation of British Industry. It is part of a national campaign, launched in 1998, which aims to increase vastly the number of enterprises involved in the transfer of best business practices. Its objectives are to:

- make industry aware of the importance of these practices for competitiveness;
- link enterprises wishing to embark on a continuous improvement approach;
- orient enterprises toward the best sources of information;
- raise the profile of business practices in Great Britain,

This initiative is an integral part of a much broader political framework, which includes numerous initiatives emphasizing the transformation of corporate culture and the adoption of high-performance business models. This policy comprises financial measures and several other measures (national system for comparative analysis of management practices and strategies, practical guides, diagnostic tools for practices, conferences, watch activities, etc.).

See: <http://www.dti.gov.uk/mbp>.

The premises of *Fit for the Future* are simple:

- 1) Competitiveness in today's world depends less on technology as such than on the adoption of a corporate culture engaging individuals and their practices around the sharing of key issues: *shared learning, shared information, shared efforts, shared goals*, etc.
- 2) The best way to achieve these learning objectives is to encourage the enterprises themselves to exchange knowledge on these practices, whence this collective approach which involves calling on networks of large business associations and providing them with a platform for exchange and transfer, with the government acting as one partner among many.

Fit for the Future offers information bulletins, case studies of model enterprises, an impressive list of events of all kinds, a forum, technical bulletins covering questions such as supply chain management, innovation management, lean production, logistics, e-procurement, e-trading, strategic management, and new knowledge management and human resources practices.

Segmenting the targeted SME clientele

In layman's terms, the notion of SMEs often refers to an undifferentiated universe of enterprises sharing, aside from their small size, a number of characteristics with respect to leadership, organization, strategies and practices. In the previous chapters, we have drawn attention to the fact that these stereotypes, certainly based on realities that are still very current, no longer allow adequately for the multiplicity of strategic models adopted by SMEs. We have also maintained that, in the circumstances, it would be illusory to target "extensive" e-business capability-building by a large number of SMEs. Only a minority of them, more clearly innovative in nature, engaged in the adoption of a new corporate culture and seeking to respond to strong signals from their business environment will be in a position to embark on this path. In the case of the others, particularly managerial exporting SMEs (which we described earlier as a group at risk), e-business capability will be built very gradually, the challenge consisting above all in engaging in an ongoing path of appropriation of advanced business practices. However this may be, it appears that at this embryonic stage in the development of e-business in Quebec, a more important place should be given to the most innovative enterprises, which are in a position to play an exemplary role vis-à-vis their fellow enterprises. The following paragraphs briefly review the approaches which could be put forward for each type of SME.

Global SMEs

These SMEs are the most likely to build extensive e-business capability in the next few years. But this represents one challenge among all the new skills they have to master. For that reason, these enterprises do not dissociate e-business from the other important dimensions of their activities.

In view of their experience of working in co-operation with partners, these enterprises are the most likely to participate in network initiatives allowing a series of organizations, accompanied by institutions or experts, to experiment with collective platforms. But experience shows they are not very likely to be affected by direct government measures, often intended for a more "generalist" clientele. On the other hand, they are often engaged in specialized association-based networks, which can more easily play a strategic accompaniment role by developing "pre-competitive" knowledge that will facilitate SMEs' important choices²⁷.

Finally, owing to their experience and the business culture driving them, these enterprises could play a significant mobilizing role vis-à-vis their sister enterprises, as the *Fit for the Future* initiative described above shows so well. However, this ideal will remain hard to attain without an appropriate organizing framework, with which the business world and its government and institutional partners could be associated.

27 This is the case, for instance, with the Aerospace Association of Quebec (AQA), which a few years ago conducted a comparative analysis of ERP software packages, in order to help sector enterprises make enlightened choices. Its observations were crucial for many of them.

Managerial SMEs

Enterprises of this type without any doubt represent the “group at risk” on which economic development stakeholders should focus their efforts. They are likely to make selective use of e-business on the basis of strong signals from their business environment and anticipated return on investment. More tactical than strategic, these SMEs are motivated by operational imperatives often imposed from outside. That is why they are more in need of information and knowledge *placed in context*, that is, read and interpreted on the basis of the conditions specific to them (see box below). Mere e-business information or sensitization strategies — of which examples abound — are clearly insufficient. The most innovative of these SMEs can nonetheless engage in a gradual learning approach, often motivated at the outset by the pursuit of an immediate solution to a concrete problem, which will enable them subsequently to observe specifically the advantages which e-business could bring them in the medium term and ultimately to set up a strategic plan closely linked to their business objectives. This “step-by-step” approach must, to be effective, involve the acquisition of internal capabilities, especially specialized human resources.

But the question of the development of these enterprises goes substantially beyond that of e-business proper. These are the SMEs which, in our view, stand to gain the most from upgrading their management practices and broadening their openness to the values conveyed by the new business cultures (interdependence and networking, transparency of information, development of intellectual capital, etc.). The stakeholders’ objective should therefore be to guide them onto a path of continuous improvement of their business practices in general, including the integration of ICT into their processes. It must be acknowledged that most of the enterprises in this group which have reached maturity today were started in a different economic and cultural environment that was indeed foreign to the new practices being imposed today. Consequently, it definitely appears that the Quebec economy will not be able to avoid making a substantial ongoing effort to sustain the required transitions. In concrete terms, this can be accomplished through very simple actions. For instance, the participation of these enterprises in PDGmd-type benchmarking systems can facilitate their self-learning and lead them gradually to a continuous improvement approach, as demonstrated in research conducted by the Research Institute on SMEs in Trois-Rivières.

Wales and Ireland Electronic Commerce Support Initiative (WIRECOM)

The WIRECOM initiative (www.ecommerce.ac.uk/wirecom/about.html) is aimed at SMEs in West Wales and Southeast Ireland thinking of moving into e-business, but having difficulty defining their needs, the approach to be adopted and the likely impact within the enterprise.

WIRECOM offers them a comprehensive evaluation to enable them to establish which of their processes are most able to benefit from e-business applications. Specialized consultants present them with a report which describes how e-business can generate efficiency gains and the steps to be taken to implement such a strategy.

The initiative is partially funded by the European Commission, and the initial evaluation is free. Enterprises wishing to avail themselves of the service have to allocate senior management time and give at least a half-day to the evaluation. Costs of any implementation are borne by the enterprise, which may choose its own consultant.

Entrepreneurial small enterprise

Most of these enterprises have sustainability rather than growth objectives, operate in typically local market spaces and style, and lack the internal resources necessary to move genuinely into e-business. For these reasons, it would be illusory to seek to approach them with individual service delivery. In some cases, though — such as rural niche enterprises — association-based portal-type projects may prove relevant for promoting and marketing their products.

Developing organizational capabilities

In the case of global and managerial SMEs, the challenge of e-business cannot be reduced to a problem of access to resources (eg., financing) to seize “business opportunities”, as is suggested by most traditional “passive” public assistance for enterprises. Before being “opportunities” whose returns always appear immediate, e-business poses instead a challenge of acquisition of *organizational capabilities* (strategic and operational, human resources, knowhow, information technology management) whose returns — quite real, like those of other advanced business practices — never appear so concretely to decision-makers. To our mind, accompaniment measures which confound the two perspectives are on the wrong track. This paper has supported this viewpoint at length, basing itself on data from surveys on SMEs. It follows that it would be illusory to build on passive measures alone to sustain business decisions with traditional tools consisting in offering financial or technical support resources. Stakeholders are urged to adopt proactive conduct instead, upstream of business decisions, likely to facilitate concrete e-business capability-building by SMEs and their support networks.

There are many ways of working to develop the organizational capabilities required to foster the adoption of the “extended SME” model by enterprises. Here are some examples:

- *Active* sensitization measures taking the form of workshops and seminars for closely targeted clientele (owners, ICT managers, sectors of activity and types of SMEs, levels of prior expertise).
- Specialized knowledge transfer measures (eg., e-procurement, participation in electronic markets) taking the form of peer workshops.
- Measures aimed at helping enterprises diagnose the capabilities of their ICT infrastructure and their future needs, either by themselves (self-diagnosis tools) or with assistance from consultants or in peer groups.
- Measures aimed at planning and implementing detailed e-business plans.
- Direct support measures for training or hiring specialized personnel.

Mobilizing intermediary groups

Intermediary groups, especially expert institutions, horizontal or sectoral business associations and SME accompaniment groups (eg., incubators) interact with enterprises within value networks which participate increasingly directly in economic production. They do so by organizing and conveying information, competencies, technical knowhow and other intangible resources (advice, linkages, sponsorship) that are essential for the competitiveness of enterprises and regions. The promotion of new business practices, notably e-business, is one of their special areas of activity, to the extent that they have easier access to collective knowhow and often play the role of agent

of change in their environment. As such, the added value of these groups can take different forms:

- Act as *learning network* facilitators, linking enterprises (by sector or interest group) with a view to engaging them in the sharing of concrete knowledge on new practices, including e-business.
- Develop and transfer pre-competitive knowledge on technical issues that are important for a sector or a series of associated enterprises (see note 27).
- Place specialized training or accompaniment services (e.g., specialized institutes, training institutions) at the disposal of SMEs.
- Facilitate the establishment of pre-competitive collaborative platforms (in the form of information portals, for instance).

Internationally there are many initiatives implemented by these intermediaries, alone or in close co-operation with public authorities, aimed at promoting e-business capability-building by SMEs. In Great Britain, for instance, the Confederation of British Industry plays a leading role in the *Fit for the Future* initiative, described above. In the United States, the National Association of Manufacturers is a major partner of the Department of Commerce in the implementation of a national strategy of assistance and accompaniment for manufacturing SMEs with respect to e-business (see box below). For several years now, the European Commission has supported the participation of intermediary groups and specialized institutions in initiatives aimed specifically at e-business capability-building by SMEs. The diversity of these initiatives is astonishing. Discussion groups organized by the Observatory within the framework of the *Globalization, knowledge economy and competitiveness* project have nevertheless shown that the level of knowledge and sensitization of Quebec intermediaries was very uneven with respect to e-business, with “generalist” groups having little expertise on the question. On the other hand, their fragmentation and dispersal hamper their ability to act truly as the linchpin of large-scale initiatives. It follows that, with few exceptions, their participation in the dissemination of e-business remains limited. But this question goes beyond the parameters of this paper.

Manufacturing Extension Program

The Manufacturing Extension Program, or MEP (www.mep.nist.gov) is an initiative of the US Department of Commerce's National Institute of Standards and Technology, which provides advice and accompaniment to small manufacturing enterprises across the United States, through a nationwide network of 400 centres. Offered by local intermediary groups, this program targets the adoption of new business practices, with the objective of increasing enterprises' productivity and competitiveness. E-business has been one of its priorities since 2000.

Four types of measures are thus promoted:

- Information and sensitization
- Assessment of preparedness for electronic business
- Management of e-business planning and implementation
- E-business solutions centre (in support of MEP expert staff).

By e-business, the MEP means the transformation of business processes through Internet technology with a view to creating value and standing out from the competition. The assistance in this regard is part of an overall offering which also targets:

- improvement of internal processes;
- management of quality systems;
- development of human resources;
- market development;
- creation of products;
- financial planning, etc.

CONCLUSION

At a recent workshop on e-business and subcontracting, the authors of this report summarized the days' discussions by observing that "the more stakeholders talk of e-business, the less what they say concerns e-business."

This apparently trivial paradox marks a healthy trend in economic development circles. In fact, the more capability is built in the technical and economic aspects of the phenomenon, the more one discovers that the practice of e-business in fact refers to a recognizable series of new practices, much larger than its technological dimensions, which present enterprises with a substantial challenge of adaptation and *capability-building*. For instance, the relatively advanced integration of information management systems between purchasers and subcontracting SMEs is not, when it comes down to it, an insurmountable technological issue; rather, it involves a questioning of traditional values and practices of SMEs, jealous of their autonomy and little prone to sharing information. In fact, the more the stakeholders discuss "e-business", the more they discover that, in reality, the challenge which Quebec has to meet is not to "win a race to connect to the Internet" but to sign on to SMEs' adaptation to the new business management cultures.

The objective of this watch report was specifically to contribute to that trend by adopting from the outset a position and an approach that are different with respect to the "e-business" object. The goal was not to deny its specific technical and operational features, but as it were to rediscover them, in light of a more fundamental review of SMEs' changing business environment. In so doing, we were prompted to take positions which may no doubt appear foolhardy to some people. When all is said and done, it is up to the reader to decide.

BIBLIOGRAPHY

58% of e-commerce sites rank strong customer relationships #1 competitive strategy, ActivMedia Research, May 22, 2001, www.activmediaresearch.com/magic/pr052201.html

“Est-ce ainsi que l’on assure la protection de votre réseau ?”, *Le Journal des technologies de l’information*, AT&T Canada, Direction informatique, Montreal, February 2001, 14 (2), www.directioninformatique.com

BEAULIEU, Martin and André TCHOKOGUÉ. *Impacts logistiques du commerce électronique*, Mimeo.

BOUCHARD, Louise. “Vétibec s’est donné les moyens de ses ambitions”, *Les Affaires*, Electronic Commerce Institute, Montreal, April 2000.

BÉGIN, Lucie, André TCHOKOGUÉ and Hugues BOISVERT. *Strategic Deployment of e-Commerce*, The Communication Collection, Isabelle Quentin éditeur, 2001.

CÔTÉ, Charles. “La revanche des égoïnes”, *La Presse*, January 20, 2001, http://www.cyberpresse.ca/reseau/archives/pub_a_p1030967.html

FREELAND, D. Grant and Scott STIRTON. *Organizing for E-Commerce*, The Boston Consulting Group, April 2000, www.bcg.com

The Future of B2B: A New Genesis (Implications for Companies), Deloitte Research, 2000.

GERMANY, Rhonda and Raman MURALIDHARAN. *The Three Phases of Value Capture: Finding Competitive Advantage in the Information Age*, www.strategy-business.com/strategy/01107

L’impact des NTIC sur la compétitivité des entreprises industrielles, GMV Conseil, January 2001.

LEON, Mark. “Pick up the process. Developing collaborative e-commerce applications revolutionizes manufacturing production.” *Info-World*, April 20, 2001, <http://iwsun4.infoworld.com/articles/hn/xml/01/04/23/010423hncollab.xml>

JACOB, Réal and Patrice OUELLET. *Globalization, knowledge economy and competitiveness: a synthesis of trends and strategic issues for Quebec SMEs*, Research Institute for SMEs, University of Quebec at Trois-Rivières, 2001.

KLEINDL, Brad. “Competitive Dynamics and New Business Models for SMEs in the Virtual Marketplace”, *Journal of Developmental Entrepreneurship*, 5 (1), April 2000.

LAPIERRE, Vallier. *Winning Strategies for B2B E-Commerce*, Electronic Commerce Institute (Quebec), Isabelle Quentin éditeur, 2001.

LATOUCHE, Daniel, Michel TRÉPANIÉ and Dany FOUGÈRES. *Villes versus campagne : les infrastructures de télécommunications avancées*, INRS-Urbanisation, Groupe Culture et Ville, Montreal, January 15, 2000.

LEFAS, Patrick. *Information économique et nouvelles technologies*, Ministry of the Economy, Finance and Industry, France, July 1998.

Enhancing the Competitiveness of SMEs in the Global Economy: Strategies and Policies, Conference of Ministers responsible for SMEs and Ministers of Industry, OECD, June 2000.

ICT and Electronic Commerce for SMEs, Working Party on Small and Medium-sized Enterprises, OECD, May 2001.

Les Besoins et attentes en services conseils de la PME au Québec, Ordre des administrateurs agréés du Québec, February 2000.

PORTER, Michael E. "Strategy and the Internet", *Harvard Business Review*, March 2001.

POUSSART, Brigitte and Éric LACROIX. *Le commerce électronique*, Collection Infomètre, Isabelle Quentin éditeur April 2000.

RENS, Jean-Guy and Gil TOCCO. *Le cybercommerce au Québec*, The Communication Collection, Electronic Commerce Institute, Isabelle Quentin éditeur, 2001.

Internet Trade Projections, Reporter Research, USB2B, January 12, 2001.

LABRÈCHE, Stéphane. "Tout un monde en mutation", *Les Affaires*, Electronic Commerce Institute, Montreal, April 2000.

VERSTRAETE, Thierry. *Histoire d'entreprendre, Les réalités de l'entrepreneuriat*, Éditions Management et Société, 2000.

Research Question, Electronic Journal of Organizational Virtualness, 2 (2), <http://www.virtual-organization.net>

Documents produced for Canada Economic Development's Observatory

BEAUDOIN, Robert and Josée ST-PIERRE. *Financement de l'innovation dans les PME : une recension récente de la littérature* (in French only), Canada Economic Development Observatory, October 1999.

BIGRAS, Yvon and Marc DÉSAULNIERS. *The Changing SME: Managing the Value Chain and New Types of Organization*, synthesis watch report presented to Canada Economic Development, July 2000.

Réponses aux questions d'analyse, CEFRIO, Ongoing watch mandate submitted to Canada Economic Development, January 19, 2001.

Renouvellement de la stratégie d'affaires électroniques, CEFRIO, Synthesis report submitted to Canada Economic Development, preliminary version, January 19, 2001.

FISSET, Liette, Marie-Pierre IPPERSIEL, Yvon MARTINEAU and Michel TRÉPANIÉ. *Knowledge Institutions and SMEs: Developing synergy - Synthesis of the literature and report on the problems and needs of Quebec stakeholders*, INRS-Urbanisation, October 1999.

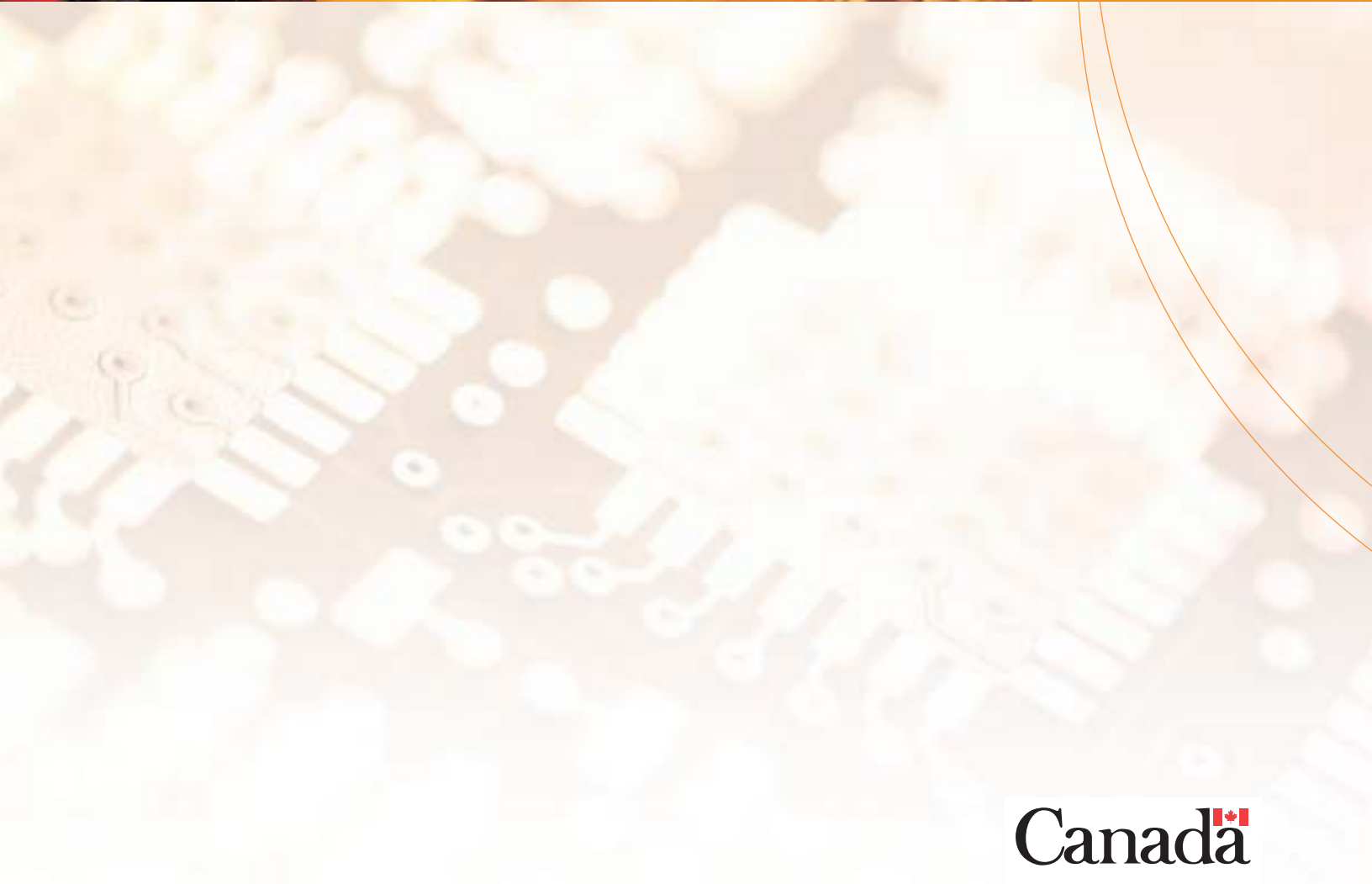
JACOB, Réal and Stéphane TURCOT. *The learning SME: Information, knowledge, interaction, intelligence*, synthesis watch report presented to Canada Economic Development within the framework of the project "Globalization, knowledge economy and competitiveness: a synthesis of trends and strategic issues for Quebec SMEs", July 2000, <http://www.dec-ced.gc.ca/en/biblio/observatoire/pdf-obs/Learning%20SME%20March%2001.pdf>

JULIEN, Pierre-André et al, *High-growth SMEs: How to manage improvisation consistently*, Bombardier Chair, Research Institute for SMEs, University of Quebec at Trois-Rivières, February 2000. Study sponsored by the Canada Economic Development Observatory, the Quebec Department of Industry and Commerce and the OECD.

Globalization and the Innovative SME: Qualitative validation of certain trends, Les Études de marché Créatec+, May 2000.

RAYMOND, Louis and William MENVIÉLLE. *Managing Information Technology and E-Business in SMEs*, synthesis watch report presented to Canada Economic Development within the framework of the project "Globalization, knowledge economy and competitiveness: a synthesis of trends and strategic issues for Quebec SMEs", July 2000.

RAYMOND, Louis. *État actuel du commerce électronique B2B : Aperçu de tendances et d'enjeux stratégiques*, Proceedings of the GroundZero3 Conference, April 2000.



Canada 